

Chronic Embitterment in the NHS

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Abstract

Chronic Embitterment is a persistent and disabling negative reaction to an event perceived as unjust and is a frequent presentation in NHS Occupational Health settings. It is associated with distress and impairment and is difficult to treat. A lack of research on the psychological processes which underpin Chronic Embitterment has led to a lack of clarity about why some people become embittered while others, facing the same circumstances, do not. Certain psychological variables were proposed as potentially relevant.

While rumination has been named as a characteristic feature of Chronic Embitterment, no published study had explored this association. In other studies, Positive beliefs about rumination have been indicated to underpin rumination. It was hypothesised that this may also be the case in Chronic Embitterment. Sense of Coherence describes a cognitive approach to problems which has been repeatedly linked to resilience following negative life events. The relationship of Sense of Coherence to rumination and Chronic Embitterment was unexplored. As both low Sense of Coherence and excessive rumination have evidence based treatments, exploring the roles of these factors in Chronic Embitterment was suggested as a useful direction for research.

Seventy nine NHS staff attending two Occupational Health departments in greater London completed a cross sectional survey in relation to the psychological correlates of embitterment. Correlations with the severity of embitterment were found in Affective Rumination and Sense of Coherence, but not Positive beliefs about rumination. Moreover it was found that the relationship between embitterment and Affective Rumination was mediated by Sense of Coherence. The implications of this

finding for the understanding, prevention and treatment of Chronic Embitterment are discussed.

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Chapter 1. Introduction

In 1990, German reunification brought about changes in employment level and status which were negative for many in East Germany. Over 20 years later, economic differences between East and West remained pronounced. Three quarters of the German population felt that there were ‘different mentalities’ in the East and West (Lemaître, 2012). While no disparity in rates of mental ill health was apparent between East and West Germany in 1990 over ten years later, a disparity emerged. Higher rates of mental ill health were seen in the East (Rotter, 2009).

In 2003 Michael Linden, a Psychiatrist working in Berlin identified a cluster of symptoms including anger, hopelessness, rumination and the desire for revenge that had been increasing in his clinical practice in the years following reunification. The individuals often did not fit within any existing diagnostic criteria, yet the impairment could be severe. In Linden’s experience, the presentation occurred in relation to a single event, which was seen as unjust. Identifying the dominant emotion as embitterment, Linden reflected on the rise of the presentation in the context of a large scale social change. Observing that Post Traumatic Stress Disorder (PTSD) occurs at elevated rates during conflicts, Linden’s impression was that in the sense of being a strong emotional reaction to intrusive memories, embitterment was conceptually similar to Post Traumatic Stress. For this reason he came to refer to the embittered presentation as ‘Post-Traumatic Embitterment Disorder’ (Linden, 2003).

Linden hypothesised that, where in PTSD a threat to persons is present, in Post Traumatic Embitterment Disorder the challenge was to deeply held, change-resistant beliefs. These are the core values which make life coherent and meaningful for an individual (Rotter, 2009, Linden, 2003). While PTSD can occur in response to actual

or threatened death or serious injury (DSM V, American Psychological Association, 2013), Sensky (2010) notes that due to the phenomenon of ‘criterion creep’ (Rosen, Spitzer & McHugh, 2008) some individuals who did not meet this criteria may have received a PTSD diagnosis when actually suffering from embitterment.

Based on his observations, Linden proposed the research diagnostic criteria for Post Traumatic Embitterment shown in Table 1. These were subsequently used to develop a diagnostic interview and questionnaire (Linden, Baumann, Lieberei, & Rotter, 2009; Rotter, 2009). In Linden’s criteria individuals failing to specify a trigger event were not classified as having Post Traumatic Embitterment. Subsequent data collected with the Embitterment Questionnaire suggested however, that it was possible to score highly for embitterment without specifying a single trigger event (Linden et al., 2009, Rotter, 2009). On the largest study using the Embitterment Questionnaire (n=1479), when the highest scoring individuals were interviewed (n=489) it was found that only 59 percent could identify a single event which had led to embitterment. Noting that a series of events or set of conditions could lead to embitterment led Sensky (2010) to question the helpfulness of the term Post Traumatic Embitterment Disorder. In Sensky’s view, seeking a specific causative event could unhelpfully narrow the focus of clinicians and make it more difficult for them to focus on the full range of personal and contextual factors that an individual presents with.

Table 1. Research Diagnostic criteria of Post Traumatic Embitterment Disorder

<p>A. Core criteria</p> <ol style="list-style-type: none">1. A single exceptional negative life event precipitates the onset of the illness.2. Patients know about this life event and see their present negative state as a direct and lasting consequence of this event.3. Patients experience the negative life event as unjust and respond with embitterment and emotional arousal when reminded of the event.4. No obvious mental disorder in the year before the critical event. The present state is no recurrence of a pre-existing mental disorder
<p>B. Additional signs and symptoms</p> <ol style="list-style-type: none">1. Patients see themselves as victims and as helpless to cope with the event or the cause2. Patients blame themselves for the event, for not having prevented it, or for not being able to cope with it.3. Patients report repeated intrusive memories of the critical event. For some part they even think that is important not to forget.4. Patients express thoughts that it does no longer matter how they are doing and are even uncertain whether they want the wounds to heal.5. Patients can express suicidal ideation6. Additional emotions are dysphoria, aggression, down -heartedness, which can resemble melancholic depressive states with somatic syndromes.6. Patients show a variety of unspecific somatic complaints such as loss of appetite, sleep disturbances, pain.7. Patients can report phobic symptoms in respect to the place or to persons related to the event.8. Drive is reduced and blocked. Patients experience themselves not so much as drive inhibited but rather as drive unwilling.9. Emotional modulation is not impaired and patients can show normal affect when they are distracted or can even smile when engaged in thoughts of revenge.
<p>C. Duration: longer than 6 months</p>
<p>D. Impairment: Performance in daily activities and roles is impaired.</p>

The long duration of difficulty is highly relevant to the possible pathology, as experiencing the emotion of embitterment is demonstrably common (Linden et al., 2009). Linden et al. (2009) questioned 158 commuters on a train and found that one third could recall transient feelings of embitterment, although clinical levels were much less common at 2.5 percent. Post Traumatic Embitterment Disorder is described by Rotter (2009) as a reactive or adjustment disorder, but for its long course. It would now be likely to come under the new DSM V category of Chronic Adjustment Disorder¹.

Given the familiarity of the emotion of embitterment, it is important to reflect that while its relation to the perception of unfair treatment may in part be a function of pathological adjustment processes, this can be a perception with some objective accuracy. Some situations can be recognised by most people, including clinicians, as humiliating or unfair. Embitterment appears to be very common in the victims of spousal infidelity for example (Hahlweg & Baucom, 2011). It is often easy to empathise with the initial emotional reaction of bitterness, and for this reason, it is common for clinicians to feel uncomfortable with Post Traumatic Embitterment Disorder as a diagnostic term. The ongoing impact on functioning is what is most relevant in the clinical presentation. Being self-perpetuating, what may begin as a reasonable emotional reaction can progress to have a long-term negative impact on an individual's occupational and social functioning (Sensky, 2010).

¹ Post Traumatic Embitterment Disorder was submitted but not accepted as a diagnosis in DSM V, however the term Chronic Adjustment Disorder was added to DSM V to describe scenarios in which an adjustment disorder lasts longer than 6 months (American Psychiatric Association, 2013).

Linden (2003) observed that embitterment is difficult to treat. Newman (2011) notes that embittered individuals often terminate therapy early. Rotter (2009) demonstrated a long course of difficulties. The study of embitterment with regard to understanding and treatment therefore has importance. Whether it is most helpful to view the condition as a diagnosis or simply as a psychological state remains open to debate, however. For this reason the term ‘Chronic Embitterment’ suggested by Sensky (2010), rather than the more diagnostic Post Traumatic Embitterment Disorder is generally used to describe the presentation here.

1.1 Chronic Embitterment in the NHS

Tom Sensky, a British psychiatrist working in an National Health Service (NHS) Occupational Health department first began writing about embitterment in the UK in 2010. He identified the NHS as an environment in which changes to shared expectations may have led to an increase in embitterment amongst staff. Sensky concluded that in his NHS experience Chronic Embitterment was a common Occupational Health presentation, causing impairment of work as well as social functioning. It was therefore a potentially economically costly affliction. Sensky observed that Chronic Embitterment was challenging to deal with clinically, partly as its psychological constituents and how they related was not well understood (Sensky, 2010). Due to lack of identification, there had been no strategically concerted attempt to treat or prevent it.

In 2015 Sensky and colleagues published a study which tested the level of Chronic Embitterment seen in NHS staff attending Occupational Health. A prevalence of 29

percent was observed (Sensky, Salimu, Ballard, Pereira, 2015). This is more than ten times the prevalence observed in a general population sample by Linden et al. (2009).

1.2 The NHS

The NHS is a vast, and complex organisation. It employs approximately 1.4 million staff, which amounts to over five percent of the UK workforce (King's Fund, 2014; Office for National Statistics, 2015). In recent years these staff have been subject to considerable change and reorganisation, for example Agenda for Change, Cost Improvement Planning, and the introduction of the Health and Social Care Act, 2012 (Wilkinson, 2015).

In this context there have been noted difficulties for staff in understanding and adapting to changing specific targets and priorities, as well as working roles and relationships (King's Fund, 2014; NHS Staff Survey, 2014). Also in this broad context have occurred notable systemic failures such as Mid –Staffordshire and Winterbourne View where the ultimate outcomes were grave failures in patient care and safety (Francis, 2013; Department of Health, 2012).

1.21 Staff sickness absence and well-being

One in every 40 pounds spent annually in the NHS is spent on staff sickness absence, a cost of £2.4 billion (NHS England, 2015). The NHS shows the highest rate of sickness absence in the public sector, also higher than the private health sector (Office for National Statistics, 2015). The Trust Support Project was commissioned by the Department of Health to improve staff well-being and reduce sickness absence in 102 NHS trusts. It reported its findings in 2014 (Rhodes, Dobson, Hunt, Small & Budd

2014). The report indicated that while many trusts identified stress and mental health as the biggest reason for absence, it remained an underdeveloped area for Occupational Health and managers. Few trusts provided managers with training on understanding and identifying mental health issues. Health and well-being was covered in only 20 percent of staff appraisals. The majority of managers were unsure of what they could do for staff who required professional help. Most trusts did not have clear or effective support structures in place for staff experiencing mental health difficulties. Dixon-Woods et al. (2014) documented that staff well-being was one of the NHS areas with least innovation. Rhodes et al. (2014) confirmed that such limited innovation as there was in this area was generally not based on known staff needs.

Simon Stevens, the NHS chief executive, publicly stated in September 2015 that ‘when it comes to supporting the health of our own workforce, frankly the NHS needs to put its own house in order’ (NHS England, 2015, para. 5).

1.22 Staff well-being and patient outcomes

There is considerable evidence that patient care is strongly influenced by aspects of staff well-being. In a report on NHS Culture and Leadership (2014) the King’s Fund reported that:

When staff report high levels of supportiveness from their immediate managers, patients report receiving better care. If leaders and managers create positive, supportive environments for staff, the staff in turn create caring, supportive environments and deliver higher-quality care for patients. (p.10)

In their review Adams, Robert and Maben (2012) collated information from surveys and interviews of staff, patients and managers, combining this with 200 hours of

direct care observation. Based on this they stated unequivocally that staff well-being was the antecedent, rather than the consequence of high quality patient care. Despite this, few NHS trusts connect staff health and well-being data with patient outcomes and costs (Rhodes et al., 2014). Support services for staff are reducing and cultures of fear have in many cases rendered managers unable to remain mindful of staff well-being (Wilkinson, 2015). Only 56 percent of staff in the 2014 NHS Staff Survey felt that their immediate managers were interested in their health and well-being, and fewer felt that their trust took action in relation to their health and well-being.

Dixon-Woods et al. (2014) in a multi method study of culture and behaviour in the NHS using survey and interview data, as well as board minutes, ethnographic case series and publicly available datasets showed that patient mortality was negatively associated with positive and supportive organisational climates. Wallace, Lemaire and Ghali (2009) showed that the job satisfaction felt by doctors had a positive relationship to their patients' treatment adherence. Williams and Skinner (2003) indicated that doctors who were dissatisfied in their work often showed riskier prescribing profiles and less adherent and satisfied patients. More broadly, Jones et al. (1988) showed a strong positive relationship between a stressful workplace environment and malpractice risk in health care settings.

Analysis of data from the NHS National Staff Survey in 2014 indicated that how engaged staff were was: 'the best overall predictor of NHS organisation's outcomes, predicting patient mortality, care quality, patient satisfaction, staff absence and even trust's financial performance' (West, Eckert, Stewart, & Passmore, 2014, p. 11). In a study by Saks (2006), which explored the predictors of staff engagement, strong relationships with perceptions of organisational support and procedural justice were

found. In 2015 Sensky and colleagues identified these same two factors as having significant relationships with Chronic Embitterment in NHS staff. These findings from separate studies are related visually in Figure 1.

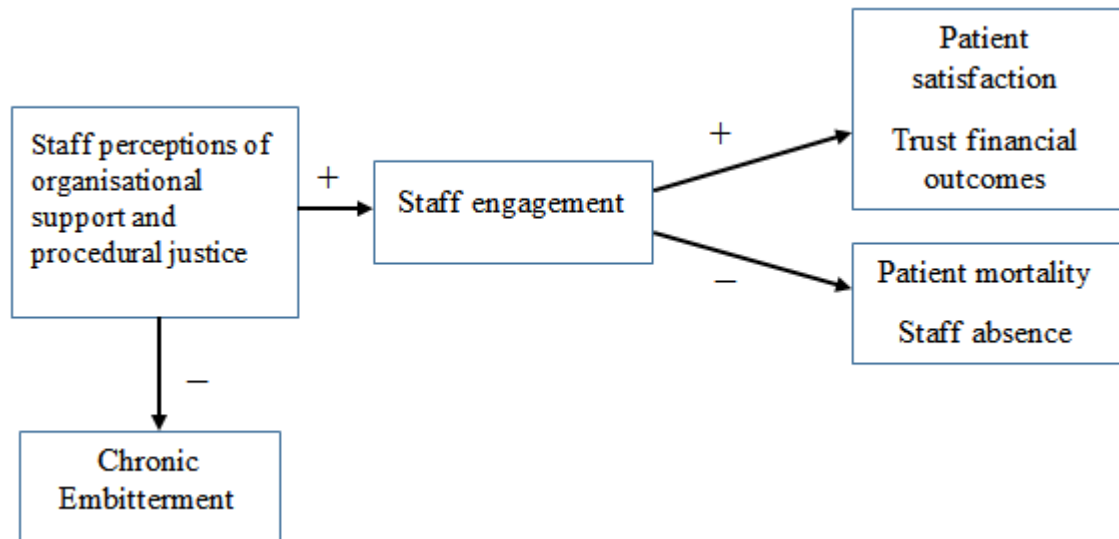


Figure 1. Relationships between Chronic Embitterment, staff perceptions and some NHS Outcomes

1.3 Chronic Embitterment

Michael Linden's initial writing about embitterment in Berlin was as a pathological response to non-life threatening stress. He described a powerful, enduring emotional reaction to events that were seen as humiliating, or somehow unfair (Linden 2003).

In a translation of Aristotle, Linden found a description that he recognised in the presentation he was seeing:

Embittered are those who cannot be reconciled, who keep their rancour, they hold their arousal in themselves, not coming to rest unless revenge has come. Revenge reduces arousal and changes pain into contentment. Does this not happen, then the

pressure grows. As the internal turmoil does not open itself to others, nobody can counsel and help. It needs time to overcome internal arousal. Those persons are a burden to themselves and their dearest friends. (p. 201)

Aristotle, trans. Susemihl (1912), cited in Linden (2003)

Linden observed that in the socio- cultural environment of eastern Germany post 1990, large numbers of individuals, often with no pre-existing psychopathology were responding to their perception that events were unfair, with severe and enduring embitterment. While the notion of embitterment is familiar to most people, with a place in literature dating back millennia, it received until recently, very limited attention from mental health professionals (Rotter, 2009).

Beginning to describe the presentation in more detail, Linden reported that individuals would have repetitive intrusive thoughts in relation to the event(s) which led to the embitterment. For these individuals, the need to rectify the situation or gain justice seemed to act as incentive to engage with the thoughts and hence, feelings of embitterment could endure. A later study supported Linden's sense of a long course, finding that the condition had typically continued for longer than six months, and often much longer. It was described as 'self-perpetuating' (Linden & Maercker, 2010). Rotter (2009) found an average duration of ongoing clinical embitterment at two years, seven months. It was often accompanied by anger, hopelessness, phobic-avoidance of triggers and somatic symptoms.

The majority of the research that has been done on the topic of embitterment to date has taken place in Germany, with an initial focus on identifying and describing symptoms, comorbidities (Linden, Baumann, Rotter & Schippan 2008a & b), and

prevalence (Linden et al., 2009). A small number of subsequent studies occurring in the UK however, have indicated that the phenomenon is not unique to Germany.

Mills, Salkovskis and Gillmore (2014), as part of a currently unpublished dissertation study developed the Bath Bitterness Questionnaire with a sample of 342 individuals, mainly recruited through social media. They found that bitterness showed significant correlations with hopelessness, suicidality, rumination and anger (Mills et al., 2014). Sensky et al. (2015), using Linden's scale and cut-off scores, found that Chronic Embitterment existed at elevated levels in NHS staff attending Occupational Health (n=235). It was strongly associated with negative perceptions of organisational change and procedural justice. This finding may be of relevance to Cairns and Hewstone's (2011) reflections on the possibility of a rise in Chronic Embitterment in Northern Ireland following the peace process agreement, as well as to its rise in eastern Germany after reunification.

1.31 Chronic Embitterment compared to other conditions

Following Linden's initial observations and proposed diagnostic criteria for embitterment in 2003, a diagnostic interview was developed with 21 patients in Berlin in 2004. A larger research project which followed, allowed for more extensive study of the condition, including the development and validation of the Embitterment Scale (Linden et al., 2009). These studies demonstrated that, using Linden's Criteria, the presentation had features in common with Adjustment Disorder, PTSD and Depression (Linden et al., 2008a). However, despite long term disabling consequences it did not meet the criteria for any of these using DSM IV and ICD 10 criteria (American Psychiatric Association, 2000; World Health Organisation, 1992).

Linden et al. (2008a) compared German inpatients at a rehabilitation centre for individuals who had had prolonged sickness absence scoring as embittered (n=50) to those not scoring as embittered. Those scoring as embittered were found to have significantly higher levels of Depression, Adjustment Disorder, and significantly lower levels of Anxiety (Linden et al., 2008a). One hundred percent of the sample reported intrusive thoughts about the event and 98 percent reported persistent negative mood.

Sensky et al. (2015) comment that in their clinical experience the overlap of Depression and Chronic Embitterment is commonly due to embitterment continuing and going unresolved over a long period. A century earlier Freud (1917) made reference to a strikingly similar phenomena:

They make the greatest nuisance of themselves, and always seem as though they felt slighted and had been treated with great injustice. All this is possible only because the reactions expressed in their behaviour still proceed from a mental constellation of revolt, which has then, by a certain process, passed over into the crushed state of melancholia. (p. 247)

In Sensky et al's (2015) study however, only 13 percent of individuals who scored as having Chronic Embitterment were also depressed. A key difference between Depression and Chronic Embitterment in Linden et al. (2008a), was that 92 percent of individuals reporting Chronic Embitterment stated that they were able experience a normal mood when prevented from thinking about the causes of their embitterment. Clinically, those suffering from Chronic Embitterment have been described to experience pleasure when thinking about retribution (Linden, 2003). Znoj (2011)

suggests that in embitterment locus of control may be external, where in Depression it is often internal. This may explain the absence of anhedonia observed in Chronic Embitterment (Sensky, 2010), but may also lead to observed feelings of hopelessness (Linden, 2003).

1.32 How events or stressors might link to Chronic Embitterment

As noted above there is evidence of Chronic Embitterment occurring at increased levels in certain scenarios. In 35 couples where one or both partners had had an affair, Hahlweg and Baucom (2011) found rates of Chronic Embitterment at 50 percent. Chronic Embitterment has also been observed to very commonly occur in, or in relation to the workplace. Sensky et al., (2015) demonstrated that the 29 percent of individuals attending an NHS Occupational Health department who scored as having Chronic Embitterment perceived the organisation as less supportive and its procedures as less just. Rotter (2009) reports a study with 102 people who have experienced job loss. While he noted that Chronic Embitterment was found at a prevalence of 25 percent, almost as many people (23 percent), rated job loss as positive or not a problem.

The appraisal of job loss in Rotter's study was significantly associated with the embitterment reaction. This suggests that the event, in itself, did not cause the embitterment, but rather, that individual's responses to the event have been determined by how they have made sense of what has happened. From this it follows that the response style an individual adopts in following a particular stressor might predict future vulnerability or resilience. Sensky et al. (2015), reflected on the possibility of a past embitterment experience leading to an increased future vulnerability even if current embitterment is resolved. Linden (2003, p. 198) has made

some similar comments with respect to previous similar events providing ‘feeder memories’.

Dodek and Barnow (2011) suggest that high neuroticism increases the likelihood of becoming embittered. This is based on the findings that people high in neuroticism have been found to attend more to negative stimuli, are more prone to engaging with irrational thoughts and have lower confidence in their ability to cope with stress. All of these represent psychological processes, and for this reason, it has been suggested that seeking stable trait vulnerabilities, like focussing on causative events and circumstances, or indeed diagnostic labels may not be the most clinically useful way to approach the study of Chronic Embitterment (Sensky, 2010). Rather, in focussing attention on the psychological processes which foster embitterment, it may be increasingly possible to intervene early in order to support individuals within organisations to build resilience in a non-pathologising way. If this is the case, there are clear moral and economic incentives for doing so in circumstances where vulnerability appears to be increased (Jones et. al., 1988, Vaananen-Tomppo, Janatuinen, & Tornqvist, 2001, Sensky, 2010, West et al., 2014).

1.4 ‘Adverse or demanding circumstances’: Stress and embitterment

Stress is defined as a ‘state of mental or emotional strain resulting from adverse or demanding circumstances’ (Oxford English Dictionary, 2016, para. 2). A survey of 1843 NHS employees carried out in 2015 indicated that 72 percent said increasing stress had caused them to lose sleep in the last 12 months and 43 percent described

themselves as ‘unreasonably stressed’ most of the time. The same percentage felt less confident in carrying out their work than in the past (Johnson, 2016).

Sensky (2010) pointed out that stress can lead to other mental health conditions such as Anxiety and Depression, but can also lead to work absence and impairment without any formal diagnosis. In the UK in 2013 fifteen million working days were lost to stress, Anxiety and Depression (Office for National Statistics, 2015). Linden et al. (2008a) found elevated rates of Anxiety, Depression and PTSD in individuals with Chronic Embitterment and Sensky et al. (2015), found a strong relationship between Chronic Embitterment and sickness absence in NHS staff. The concepts of stress and coping are therefore seen as important contributors to the understanding of risk and resilience to Chronic Embitterment in the workplace.

1.41 Stress

Historically, stress has been viewed primarily as an organism's physiological response to adverse stimulation (Selye, 1956). In humans however, it has been demonstrated that numeric quantification of the type and number of external stressors fails to account for the great variability seen in human stress responding (Holmes & Rahe, 1967, Schwarzer, 2001, Schwarzer & Schulz, 2002). An imposed stress such as the threat of failure for example, has been found to impact on task performance negatively for some people, while it improved others’ performance (Lazarus & Eriksen, 1952).

Stress has come then in part, to be viewed as a transaction, in which the meaning of stressful events and vulnerability are modified by an individual’s personal resources (Cohen, 1981). For less acutely threatening events, including the vast majority of

work place stressors, those which are appraised by an individual as potentially outstripping their coping resources are experienced as stressful (Schwarzer & Schulz, 2002). This conceptualisation is consistent with the widely used and understood diathesis-stress model, in which the combination of external circumstances and internal vulnerabilities, in varying proportions, both account for the development of stress related illness within individuals (Lazarus 1966; Beck, Rush, Shaw & Emery 1979).

Max Rotter, who studied Embitterment in Germany with Linden, highlights the importance of cultural and societal norms and values in how stressors are viewed and responded to, perhaps indicating these factors in the rise of Embitterment in eastern Germany. While diathesis-stress models, in his view account for variability in individual stress responses, he identifies that these wider issues, wherein whole groups find themselves more or less vulnerable to stress are insufficiently integrated in such models (Rotter, 2009).

1.42 Vulnerability to stress

Reflecting on these influencing factors further, in terms of stress or embitterment, biological, psychological and social aspects of life are broadly accepted to all contribute to human psychological health or its absence (McLaren, 1998; Kinderman, Schwannauer, Pontin, & Tai, 2013). As a model however, the Bio-Psycho-Social has been criticized for its lack of clarity and specificity. Epstein and Borrell-Carrio (2005) have expressed the sense that this vagueness limits its clinical utility and comment that ‘...habits of mind may be the missing link between a biopsychosocial intent and clinical reality’ (p.426). Kinderman (2005) expressed the same view.

It has now been demonstrated that the psychological processes on which individuals draw in understanding and processing incoming information have a powerful effect on how situational and personal factors lead to psychological outcomes. Some of the best evidence of this comes from an online questionnaire based study involving over 32,000 participants. Using a predictive path model, Kinderman et al. (2013) found that the relationships between social deprivation and trauma, and mental health problems were strongly mediated by specific psychological processes, for example rumination and self-blame. While external circumstances naturally impact on a person's stress level, internal, psychological processes appear have a strong influence over how much, and what the functional outcome of the stress experience will be.

Below is a simplified diagram adapted from the predictive path model illustrated by Kinderman et al. (2013), which show's psychological processes as a mediator of the influence of elements of the bio-psycho-social model on mental health (Figure 2).

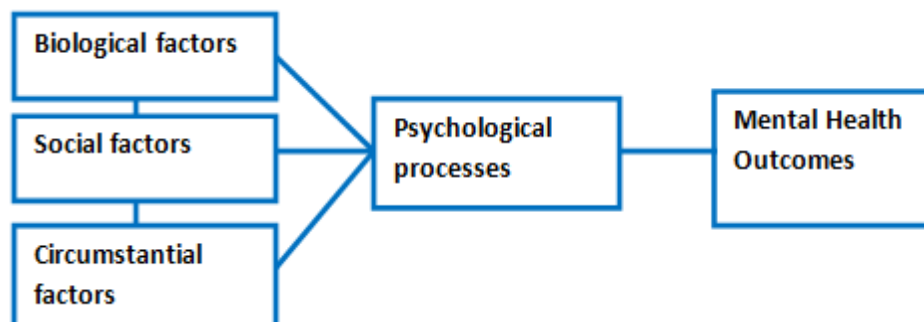


Figure 2. Mediating psychological processes, adapted from Kinderman et al. (2013)

The relationships suggested by Kinderman's model, may have importance in terms of how to go about investigating, preventing and treating psychological phenomena of interest. This expanded theory also potentially takes more specific account of the situational factors which Rotter raised as lacking intergation in the diathesis stress

model (Rotter, 2009), by incorporating them as another influence on psychological processes .

1.43 Coping processes

In light of the recognition that people vary in how able they are to manage stress, a large body of literature has arisen on the subject of coping. Once a situation has been appraised as stressful, coping reflects the different thoughts and behaviours that people use to manage that stress. Lazarus and Folkman (1984) initially identified two types of coping. Problem focussed coping is broadly concerned with changing external circumstances to manage stress. Emotion focussed coping, is the attempt to manage stress by focussing on emotional experience.

Appraising a situation as stressful indicates that an individual perceives a potential harm or threat, and coping therefore has a strong emotional context. The management of emotion is an important facet of coping (Folkman & Moskowitz, 2004). Emotional regulation encompasses all the processes that a person invokes when managing their emotional state in a given situation. Success in managing strong emotions has been researched in relation to the processing, reappraisal and suppression of emotions.

While emotional processing may have benefit in the short term, if this continues it may become ruminative and lose its benefits (Stanton et al., 2000; Nolen-Hoeksema, 2000). This may explain why emotion focussed coping is often associated with higher levels of distress (Folkman & Moskowitz, 2004). Suppression of emotions was found to have a negative effect on subsequent memory of events which may protect against rumination (Gross & John, 2003) . It may be socially adverse however, in that there is some evidence to suggest that interaction with someone suppressing negative emotion

is more stressful than with someone who is expressing this emotion (Butler, Egloff, Wilhelm, Smith, & Gross, 2003).

Coping which is prosocial has been linked to better emotional outcomes (Wells, Hobfoll & Lavin, 1997) but is perhaps more a feature of female than male coping (Dunahoo, Hobfoll, Monnier, Hulsizer & Johnson, 1998). A study of 169 divorced women highlighted that social and meaning focussed coping alongside problem and emotion based strategies contributed to coping (Zautra, Sheets & Sandler, 1996; Folkman & Moskowitz, 2004). In a study of caregivers, just under 1800 people were asked to identify a positive meaningful event which had happened to them recently. 99.5 percent were able to do so. When Folkman (1997) explored these events qualitatively, she found that they were often fairly mundane, and often unrelated to the role of caregiving. Folkman therefore suggested that by looking outward and thinking flexibly about relatively ordinary events, participants were able to create meaning and in so doing enhance coping and positive affect.

There is good evidence that in highly distressing situations such as illness and bereavement, levels of both negative and positive emotion are elevated. This is taken as evidence of some degree of independence in the processes which generate these emotions, meaning that an increase in positive emotion is not the same as a decrease in negative emotion. Different coping strategies work by impacting on different emotions. While acceptance and distraction have been found to work by reducing negative affect, relaxation and action work by increasing positive affect (Stone, Kennedy-Moore & Neale, 1995). In the bereaved caregivers of men with AIDS it was found that problem focussed coping was reliably associated with increasing positive

affect, but had an inconsistent relationship with negative affect, sometimes reducing it, but not always (Moskowitz, Folkman, Collette & Vittinghoff, 1996).

Success in meaning finding has been linked with reduced mortality risk in caregivers (Park, Cohen & Murch, 1996). Folkman & Moskowitz (2004) suggest that creating meaning is linked with the affirmation of values and that the positive affect linked to problem focussed coping relates to a western value system which prizes control and mastery. Mehnert and Vehling (2011) explored the theme of meaning in embitterment, highlighting the unique importance of meaning and purpose for well-being and prosocial adjustment in physical illness. The failure to find or create these, they suggest, results in demoralisation and potentially embitterment. The ability to be cognitively flexible in finding meaning in events may therefore act as buffer against the development of embitterment (Mehnert & Vehling, 2011).

Aspects of emotion focussed coping such as cognitive processing and reappraisal also relate to making sense of events in relation to personal values. Successful problem focussed coping may be about the motivation to take forward this understanding into action, and therefore it is perhaps not accurate to say that problem and emotion focussed coping are entirely distinct. Both are likely to be necessary components of successful coping, and may be underpinned by the will to find or create meaning in events, which is described by Frankl (1955) as a universal human motivation.

Whilst much of coping research has focussed on past events, more recently the branch of future oriented pro-active coping has emerged (Aspinwall & Taylor, 1997; Kovacs, 2007). Schwarzer and Knoll (2003), state that the proactive person finds opportunities for growth in the challenge of stress. This again links to the process by

which an individual makes sense of potentially threatening events, and converts that understanding into action, learning processes which will reduce future stress.

In summary, while stress is impacted upon by a variety of external factors, psychological processes mediate how these events and circumstances effect the psychological health of individuals. In terms of vulnerability and coping, an individual's capacity to adaptively and flexibly make sense of stressful events informs the strategies they adopt.

1.44 Affect, arousal and embitterment

Reflecting on the importance of emotional regulation in the management of stress it is relevant to mention the study of affect, from which the core features of emotion have been identified, and to consider the place of embitterment within this framework.

Over the last 90 years, two principal theories of how affect is structured have been proposed (Seo, Barret & Jin, 2008). Both the Positive and Negative Affect and Valence-Arousal theories have received considerable empirical support and the two theories have now been demonstrated to be congruent (Figure 3). Either model accounts for 40-70 percent of the variance in self-reported emotion and findings in relation to one theory have generally been found to be interpretable in terms of the other. This can be seen visually in Russell's (1980) emotional circumplex, with empirically corresponding emotions mapped by Feldman (1995) beside it in Figure 3. This demonstrates how axes showing arousal, valence, negative and positive affect ('NA' and 'PA') are thought to relate and the extent to which these emotional features are reported in common emotions.

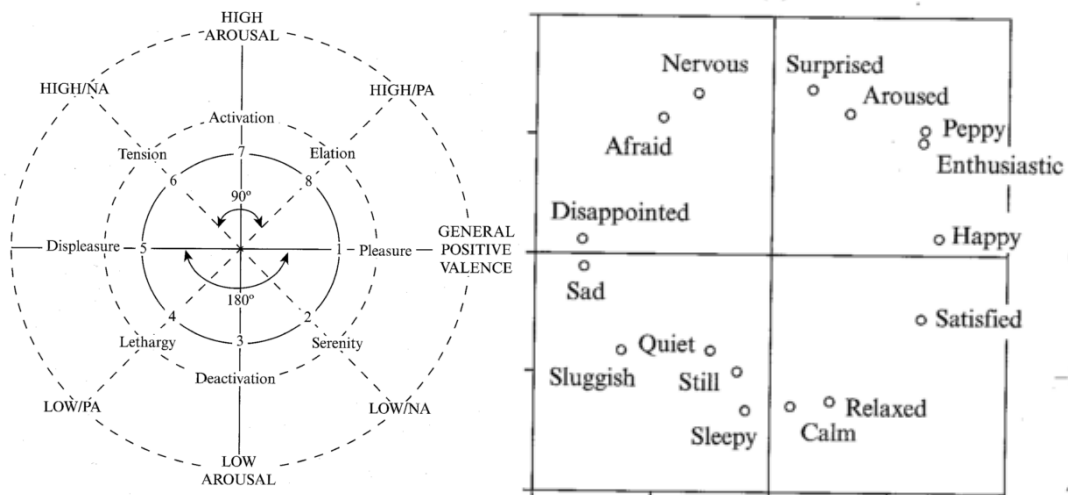


Figure 3. Schematic representation of affective space from Russell (1980) and Feldman (1995) cited in Seo et al. (2008)

The positive and negative affect scales are thought to be moderately distinct, congruent with the coping literature discussed above (Stone et al., 1995). In the study of affect, the positive and negative scales have been linked to the affective components of neuroticism and extraversion, and trait-like predispositions in susceptibility to certain affective states have been found, with sensitivity to different sorts of environmental cues leading to different emotional self-reports (Watson & Clark, 1984). The positive and negative affect model has also been linked specifically to evaluative processes. The affective significance of stimuli has been associated with positive and negative motivational systems called approach and avoidance (Cacioppo, Gardner & Berntson, 1997, 1999). Arousal can be experienced in a positive or a negative way, as energetic or tense, and this may relate to whether a positive or negative motivational system is preferred (Thayer, 1989; Seo et al., 2008). This in turn, might suggest that how arousal is experienced influences choice of coping strategy and relates to the literature on coping styles in stress. Emotional coping is linked with avoidance, and more active, problem focused coping is linked with approach (Pallant and Lae, 2002).

Embitterment has been described as a predominantly negative affect, high arousal emotion (for example Linden, 2003; Sensky 2010). Russell's circumplex may serve as a useful framework to reflect on the positioning of the emotion of embitterment. Considering embitterment in this way provides another lens of information to apply to embitterment and understanding the processes which take place within it.

1.5 Progressing the study of Chronic Embitterment

Based on their ideas about the underlying psychological processes in Chronic Embitterment, both Sensky and Linden discuss possible therapeutic approaches, including wisdom therapy, metacognitive therapy and mindfulness based interventions. Despite this, there has not been an attempt to empirically validate a theory of the psychological processes present within the Chronic Embitterment reaction. Psychological processes are likely to mediate between the symptoms first described by Linden et al. (2008b), and the causative events and circumstances described by numerous researchers (for example Linden, 2003; Cairns & Hewstone, 2011; Rotter, 2009; Sensky et al., 2015).

Understanding the psychological processes which confer risk and resilience in embitterment is likely to be essential to the development of effective treatment. It is also essential to understanding why some people become, and remain embittered while others, in similar circumstances are able to be resilient (Linden, 2009; Sensky, 2010). This understanding is necessary in order to develop systems for preventing embitterment. For these reasons, increased understanding of the psychological underpinnings of Chronic Embitterment is warranted.

What follows is not intended as a comprehensive account of psychological processes in embitterment, but will highlight a number of psychological concepts suggested to be relevant. These have been selected not only because of their likely importance in embitterment, but also because there is evidence in the research literature that they can be influenced by psychological interventions.

1.51 Psychological processes possibly associated with Chronic Embitterment

In the development of embitterment, it would appear that events occur which are to varying degrees unpleasant, but within the scope of usual experience. The events are followed by intrusive thoughts about the event. Intrusive thoughts on upsetting topics are common in the population (Rachman & deSilva, 1978), as is the transient feeling of embitterment (Rotter, 2009). This suggests that a key stage in the development of Chronic Embitterment is how these intrusions are processed, a suggestion which is illustrated in Figure 4.

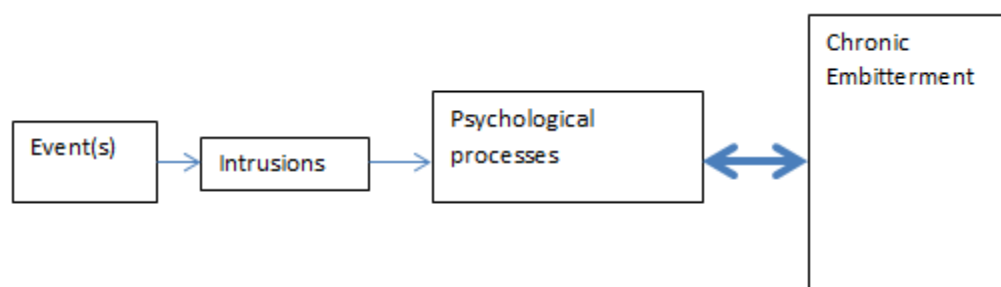


Figure 4. Psychological processes and Chronic Embitterment

1.52 Rumination

According to Nolen-Hoeksema and Morrow (1991) a ruminative response style is the tendency to intentionally focus on one's moods and the possible meanings and outcomes of these moods. In their view this response style theoretically should predict the duration of negative moods regardless of the nature of the event that led to the ruminative response.

Rumination has been identified as strongly mediating the relationships between external stressors and a range of subsequent mental health difficulties in a sample of over 32,000 (Kinderman et al., 2013). People high in rumination are more likely to interpret life events as stressful (Lok & Bishop, 1999). Stress increases physiological arousal which can reduce blood flow to the frontal lobes, decreasing skills in flexible thinking and reasoning (Silva, 2013). This is consistent with the perseverative presentation seen in Chronic Embitterment (Linden et al., 2008a). In addition, people high in rumination are less likely to follow through on solutions they do come up with, and report having less confidence in their own problem solving skills (Murray Law, 2005).

Sensky (2010) noted that individuals with Chronic Embitterment may talk about events at great length in attempts to engage others in their cause and may send increasingly lengthy correspondence in relation to events. Several researchers have indicated that the tight mental linking of negative experiences, so that one negative intrusion triggers a crowd of others, is a central feature of Chronic Embitterment (Shaver & Mikulincer, 2002; Blom, vanMiddendorp & Greenen, 2012). Rumination is

associated with increased occurrence of intrusive thoughts and distorted perceptions of life events (Lyubomirsky & Nolen-Hoeksema, 1995). It has been highlighted as a factor which facilitates the development of self-perpetuating pathogenic internal states from external stressors (Brosschot, Guerin & Thayer, 2006), which is an effective description of how Chronic Embitterment appears to arise (Linden, 2003, Sensky, 2010).

Nolen-Hoeksema and Morrow (1991) indicated that in response to an experience or emotion, most individuals respond in fairly stable, typical ways, for example rumination, distraction and problem solving. Only rumination however, was found to be a reliable predictor of the duration of negative mood states (Treynor, Gonzalez & Nolen-Hoeksema, 2003). In a recent doctoral study by Mills et al. (2014), rumination was empirically linked to Chronic Embitterment for the first time using the ruminative responding scale of the Response Styles Questionnaire, (Nolen-Hoeksema & Morrow, 1991). Mills et al. found that 'Ruminative brooding' was the best predictor of bitterness on the Bath Bitterness Questionnaire. Traditional Cognitive Behaviour Therapy (CBT) has proven less effective for individuals with high levels of rumination (Watkins, 2010).

Cropley, Michalianou, Pravettoni and Millward, (2012), in a series of studies about the ways people think about and are impacted by their work developed a measure called the Work Related Ruminations Scale (WRRS). The measure captures three distinctive thinking styles: Detachment, Affective Rumination and Problem Solving Pondering, which are similar to the 'Response Styles' described by Nolen-Hoeksema and Morrow (1991). Detachment relates to the ability to disengage from repetitive thinking and is negatively correlated with both Affective Rumination and Problem

Solving Pondering (Querstret & Cropley, 2012). Affective Rumination and Problem Solving Pondering are distinguished by emotional arousal. In Affective Rumination, it is proposed that ongoing high levels of psychophysiological arousal are maintained whereas in Problem Solving Pondering this is not the case (Cropley & Zijlstra, 2011). In Problem Solving Pondering the prefrontal cortex, the brain region associated with higher order functions such as thinking, planning and reasoning is suggested to be active, inhibiting arousal of the sympathetic nervous system (Querstret & Cropley, 2012). Increased activation of the sympathetic system and reduced activity in the prefrontal cortex, which is suggested to be present in Affective Rumination can be evidenced through increased production of salivary cortisol, a physiological marker of stress. Higher levels of salivary cortisol have been demonstrated in individuals with high trait rumination (Rydstedt, Cropley, Devereux, & Michalianou, 2009). In this way Rumination has been linked to physiological stress or arousal, although the direction of this relationship is not known.

Based on the work of Nolen-Hoeksema, Morrow, Querstret and Cropley in relation to rumination and that of Linden and Sensky in relation to embitterment, it was hypothesised in the current research that only Affective Rumination would be positively correlated with Chronic Embitterment, thought to be a high arousal emotion, in a work context. It was predicted that the presence of Affective Rumination would in account for the perseveration of generally unhelpful and repetitive thinking in relation to perceived injustices suffered and this is illustrated in Figure 5.

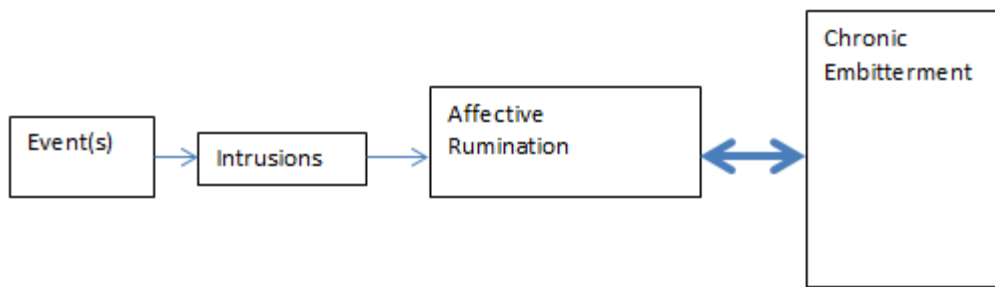


Figure 5. Affective rumination

1.53 Beliefs about rumination

In their 2008 review Nolen-Hoeksema, Wisco and Lyubomirsky pointed out that there remain questions about how rumination arises. One of these relates to the cognitive phenomena which give rise to differences in the tendency to ruminate. As an attempt to answer this question Wells and Matthews (1996), as part of their Metacognitive Theory describe an emotion processing system, in which the distribution of attentional resources, responsible for processing of stimuli is influenced by underlying beliefs about the functions and controllability of thinking processes. These metacognitions might also be described as memories, operating outside the realm of conscious awareness. If ruminative thinking is felt to be important and meaningful, people will be more likely to attend to it, potentially limiting flexibility of thought and excluding other relevant information and experience. Wells and Matthews describe this as a ‘cognitive attentional syndrome’ which allows ineffective processes such as rumination to continue although they have been demonstrated to increase the duration of negative mood states (Nolen-Hoeksema & Morrow, 1991).

Hoeksema (2005) highlights that high ruminators are more likely to have a history of trauma and to believe that by rumination they are gaining insight: that the process is helping them. Dodek and Barnow (2011) found that in a sample of 45 young people

reporting embitterment, there was an increased likelihood of the experience of parental rejection. This led the authors to speculate that young people reporting embitterment may have increased vulnerability to rejection and hypervigilance, also suggesting a link to information processing style. This would support the findings of Kinderman et al. (2013), relating to the importance of psychological process in mediating the impact of life events on mental health. Metacognitive beliefs about the helpfulness of rumination have been indicated to play a maintaining role in negative mood states because they underlie the tendency to engage in rumination (Wells, 2008). Such beliefs have been shown to be a pre-morbid vulnerability factor in the development of Depression (Luminet, 2004) which has a number of features in common with Chronic Embitterment.

The Positive Beliefs about Rumination Scale (PBRs) has been developed to assess the extent to which individuals believe rumination is helpful and scores have been found to be reliably higher in clients prone to rumination (Watkins & Moulds, 2005). If high levels of Affective Rumination are present in Chronic Embitterment, then the findings just described suggest that these may be underpinned by Positive beliefs about rumination. The presence of Positive beliefs about rumination could explain why some individuals are more prone to harmful rumination, and therefore more vulnerable to Chronic Embitterment. This would be new information about the relationships between the psychological processes relevant to Chronic Embitterment, and how these relate to a variety of life stresses. This potential relationship is illustrated in Figure 6.

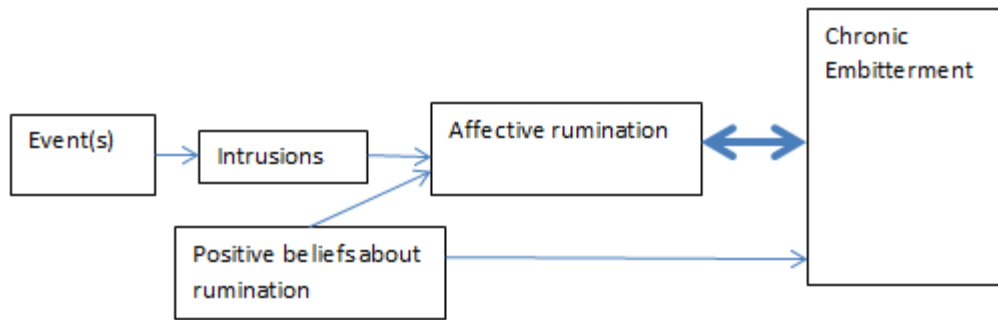


Figure 6. Positive beliefs about rumination

1.54 Sense of Coherence and the salutogenic perspective on Chronic Embitterment

While certain metacognitive styles might give some people increased vulnerability to engaging in the cognitive and attentional processes which appear to be prominent in Chronic Embitterment, others in similar circumstances appear either to lack such vulnerability, or to possess a compensatory resilience strategy.

The concept of salutogenesis has been proposed to explain those situations where, despite great adversity, people have been able to function well. The term is derived from the Latin words ‘saluto’ meaning ‘health’, and ‘genesis’, meaning ‘to create’. The concept arose when, in an unrelated study of holocaust survivors in 1970, the sociologist Aaron Antonovsky observed with curiosity the surprisingly good long term physical and psychological functioning of some atypically resilient individuals (Antonovsky, 1979). His subsequent interviews and thematic analyses of how these people had coped with adversities and moved forward in their lives highlighted common themes within their coping processes. In Antonovsky’s analysis he identified that the specific resources used by well-functioning individuals to manage stress varied widely. Common elements existed however, in the capacity to find meaning in situations which enabled motivation to strive, and thus to reflect and to approach

adverse situations with a variety of ideas for progress, and a relatively untarnished and coherent world view.

The process of sense making was a constant factor in the healthy holocaust survivors Antonovsky spoke to, and the feature that distinguished them as a group from those who became unwell (Horn, 2014). This is congruent with the literature on coping.

Mehnert and Vehling (2011) when discussing meaning and embitterment stressed the importance for individuals of feeling that life is meaningful and being able to view it in this way, even when faced with stress and challenge. Baumeister and Newman (2004) reported that meaning is derived from the ability to accommodate stressful experiences into a coherent life story. Sense of Coherence is the term Antonovsky used to describe this general disposition, the presence of which made it easier for an individual to exploit the resources on hand to construe their situation in ways which allowed them to progress.

Sense of Coherence is now a widely-validated construct, describing a persons' ability to flexibly cope with problems. Linden et al.'s (2008a) conceptualisation of the core pathology in Embitterment is as an inflexibility of thinking in relation to basic beliefs and adverse events. This suggests that individuals who are able to think flexibly about stressful events are less likely to develop Chronic Embitterment.

Sense of Coherence aims to capture an individuals' sense of the predictability, meaningfulness and manageability of events. It can be exemplified using Rotter's (2009) study of job loss as a possible scenario. In this study 102 people lost their jobs. Subsequently, 25 percent of the sample developed Chronic Embitterment, but nearly as many came to view the situation as positive. Individuals with a low Sense of Coherence may have experienced the loss of the job as unfair, humiliating and, unable to make sense of this may have become pre occupied with addressing this wrong, a

difficult task which may then have prevented them from seeing, or seeking other opportunities. Individual's with a high Sense of Coherence on the other hand, may more easily have come to the view that the job loss, while challenging, was not a personal slight, and gave them an incentive to apply for other positions which may ultimately have suited them better.

Like metacognitive beliefs and ruminative response styles, there is literature linking Sense of Coherence with aspects of an individual's developmental history (Hicks & Routledge, 2013; Ying, Lee & Tsai, 2007). This may suggest that its links to well-being relate to a more effective learned approach to problems, an experience of the environment as stable and predictable, and a reduced tendency to engage in rumination. Despite this, research evidence has suggested that Sense of Coherence can change over time (Schnyder, Buchi, Sensky, & Klaghofer, 2000; Vaananen-Tomppo et al., 2001) and be increased by intervention (Vastamaki, Moser & Paul, 2009; Orly, Rivka, Rivka & Dorritt, 2012).

Sense of Coherence is described by Nammontri (2012) as a fundamental concept in public health. Erickson and Lindstrom (2006) reviewed the health correlates of Sense of Coherence over the decade 1992-2003 and identified 458 relevant papers. They concluded that while Sense of Coherence had some relation to physical health it mainly predicted perceived health and aspects of mental health, and was underused as a potential health promoting resource (Figure 7).

It has been indicated that Sense of Coherence is negatively correlated with anger (a feature of embitterment), and is positively correlated with psychological well-being (Braun-Lewensohn & Sagy, 2014). External locus of control and high neuroticism,

factors which have been suggested to be positively associated with Chronic Embitterment (Znoj, 2011; Dodek & Barnow, 2011), have also been linked to low Sense of Coherence (Johnson, 2004; Gibson & Cook, 1996). Studies have reported that high levels of occupational stress, are associated with low Sense of Coherence (Orly et al., 2012; Nordang, Hall-Lord & Farup, 2010; Seibt, Spitzer, Druschke, Scheuch, & Hinz 2013).

The Sense of Coherence concept overlaps with many other predictors of well-being, for example Hardiness (Waysman, Schwarzwald & Solomon, 2001), Resilience (Rutter, 1985), Self-Efficacy (Spector, 1982), and Optimism related to perceived capacity to manage demands (Benight & Bandura, 2004). All the associations shown in Figure 7 have been demonstrated by research. Sense of Coherence has been identified as the most distinctive predictor of capacity to manage stressors in a critique of the various identified personality determinants of health and stress resistance (Ouellette & DiPlacido, 2001).

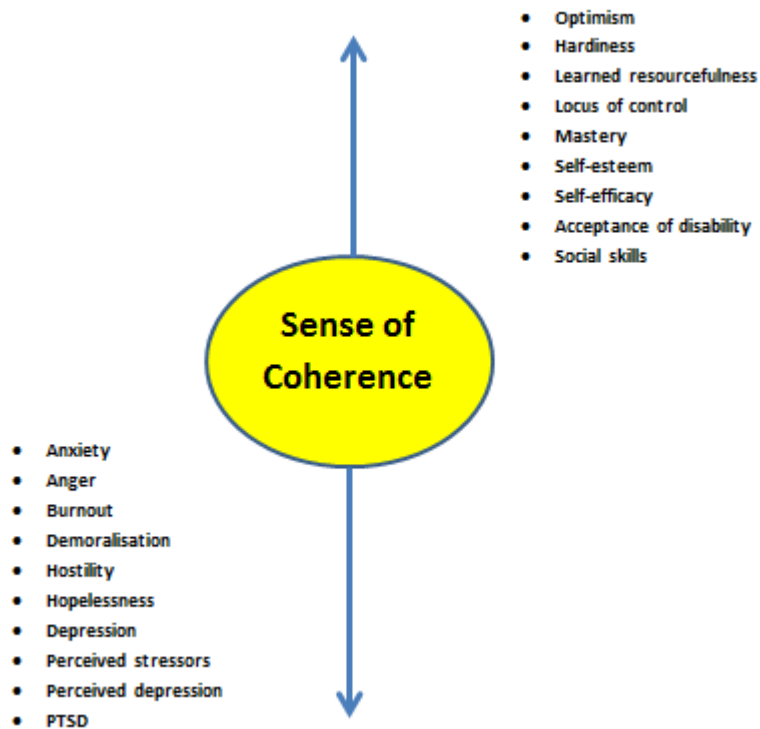


Figure 7. Positive and negative correlates of Sense of Coherence from Erikson and Lindstrom (2006)

Although there is a literature linking Sense of Coherence to stress responding, links to rumination and Chronic Embitterment are novel to the literature. Online searches of three scientific data bases, Psycinfo, Medline and GoogleScholar revealed no studies which linked them directly. The three psychological variables suggested to be relevant to Chronic Embitterment are illustrated in the proposed model shown in Figure 8.

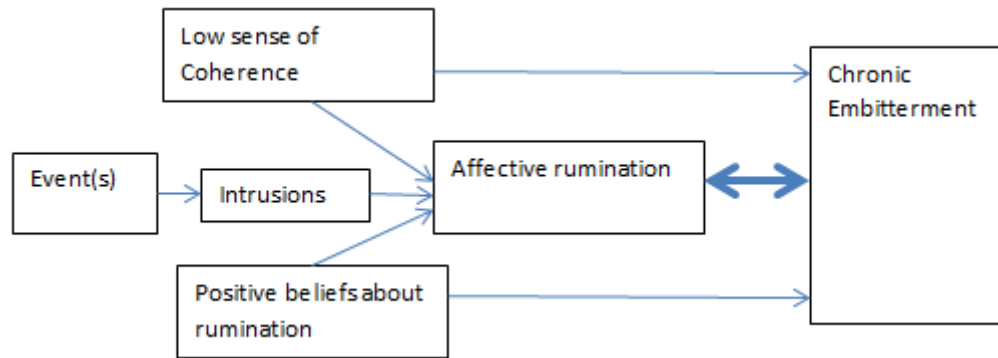


Figure 8. Developing a model of Chronic Embitterment

1.6 Summary, Aims and Hypotheses

The psychological well-being of NHS staff is a neglected area of research but one which is of vital importance to the functioning of the NHS and as such, the health of the British nation. Stress is an influential factor with relation to staff health, but one which is unhelpfully broadly defined and hence not always well understood or adequately dealt with (Sensky, 2010). Chronic Embitterment has been identified as a psychological phenomenon which may account for a portion of stress in NHS staff (Sensky 2010, Sensky et al., 2015). It has been noted internationally to become more prevalent in certain conditions particularly relating to changing circumstances, and appears currently to be highly prevalent in NHS staff. Chronic Embitterment, like other common mental health conditions is likely to be mediated by psychological processes. Better understanding of what these processes are and how they work to maintain this highly perseverative condition is a potentially fruitful avenue of research.

There is likely to be a positive association between embitterment and Affective Rumination (Linden, 2003; Mills et al., 2014). Positive beliefs about rumination and

Sense of Coherence have been identified as further psychological processes which may have relevance to vulnerability and resilience in Chronic Embitterment.

Based on the above, the following experimental hypotheses were suggested:

NHS Staff attending Occupational Health who score as having Chronic Embitterment, will show significantly higher levels of Affective Rumination, Positive beliefs about rumination and significantly lower levels of Sense of Coherence than those who do not score as having Chronic Embitterment.

Positive beliefs about rumination will show a positive relationship with Chronic Embitterment, mediated by the presence of Affective Rumination.

Sense of Coherence will show a negative relationship with Chronic Embitterment, again the relationship will be mediated by the presence of Affective Rumination.

These hypothesis were tested in a cross-sectional study, with consecutive all-cause NHS Occupational Health attenders, an established high risk group for Chronic Embitterment, for whom there is a clear mandate for developing effective treatment (Sensky, 2010, Vaananen-Tomppa et al., 2001).

Chapter 2. Methods

This study follows on from work in West London Mental Health NHS Trust on the understanding of Chronic Embitterment in an organisational context. Following a study protocol similar to that used by Sensky et al. (2015), in the present study, the focus moved from an organisational, to a psychological perspective, exploring some thinking processes which may underpin and sustain the embitterment reaction within individuals.

2.1 Participants

Between September 2015 and March 2016, 79 members of NHS staff attending appointments at Occupational Health in West London Mental Health NHS Trust and London North West Healthcare NHS Trust were recruited. Seventy five respondents self-reported age. The distribution of ages was normal ranging from 22- 65, with a mean of 44.3 years ($SD = 12.1$). Seventy one respondents self-reported gender, and of these 68 percent ($n = 48$) were female.

2.1.1 Exclusion criteria

The study was planned as an anonymous, cross sectional survey of all staff attending Occupational Health appointments in West London Mental Health NHS Trust including sites at both Broadmoor and Ealing.

People were excluded from the study if the Occupational Health Advisor or Physician who had just seen them considered that their levels of distress or illness made the invitation to participate inappropriate.

The study had no provision to include people with insufficient command of English or insufficient literacy to complete the questionnaires. It was considered that this would only apply to a very small minority of Occupational Health attenders as all are employed within the NHS, and will have been required to have the level of English necessary to perform their role, as well as to have completed written and oral application procedures (NHS employers.org).

It was not possible to plan provision, in an anonymous study, for those individuals with sensory or physical difficulties which rendered them unable to complete paper questionnaires.

People visiting Occupational Health multiple times in the study period were asked not to complete the questionnaires again if they had already completed them.

2. 2 Measures

Respondents were asked to complete five questionnaires (Appendix 1). It was identified that the titles of some of the questionnaires contained emotive or technical language, such as the terms ‘embitterment’ and ‘rumination’. In the interests of minimising any response bias or participant negative experience (Choi and Pak, 2005), questionnaire titles were removed in the presented versions.

2. 21 Embitterment Questionnaire (Linden et al. 2009).

This self-report questionnaire was devised clinically based on the presentation observed by Linden and colleagues in Berlin. The questionnaire has the prefix: ‘I have experienced one or more distressing events...’. This is followed by 19 short outcome statements such as: ‘that I see as very unjust and unfair’ and ‘that makes me feel

helpless and disempowered'. Each of the 19 scale items was rated on a five point scale relating to the extent to which the respondent felt the item was reflective of them. Linden and colleagues demonstrated that the questionnaire had good internal consistency with Cronbach's $\alpha = 0.94$. Construct validity was established through correlations with the Bern Bitterness Scale ($r = 0.67$) and the Revised Impact of Events Scale ($r = 0.76$) (Linden et al., 2009).

The mean score of the 19 items was used as the overall embitterment score. A score of over 1.6 was taken to indicate the presence of Chronic Embitterment. This cut of score has been demonstrated to be reliable and valid in both clinical and non-clinical populations (Rotter, 2009). The same cut off was used by Sensky et al. (2015), citing Linden et al. (2009) who had demonstrated 90 percent sensitivity and 92 percent specificity in using this cut-off compared to a diagnostic interview. In other work a higher score of two has been used to increase specificity (Rotter, 2009). However, as report of 1.6 as the critical discriminant value has been consistent and, as embitterment is being treated as a phenomenon rather than a diagnosis here, 1.6 was considered to remain an appropriate cut off.

As a possible alternative measure of embitterment, the Bath Bitterness Questionnaire devised by Mills et al. (2014) as part of a doctoral study was also considered. While this measure was devised in English and therefore may have more culturally specific features, convergent validity with Lindens scale had not been established, and the measure had not been validated in any published study. It was therefore considered that Linden's translated Embitterment Questionnaire remained the stronger measure for use in the current study.

In the current sample Linden's Embitterment Questionnaire demonstrated internal consistency of Cronbach's $\alpha = .96$.

2. 22 Positive Beliefs about Rumination Scale (PBRs; Papageorgiou & Wells, 2002).

While Positive beliefs about rumination have been shown to correlate highly with depression, elevated levels have been shown to be still present in individuals whose depressive symptoms had abated compared with never depressed controls. This may suggest that Positive beliefs about rumination are not simply a feature of depressive rumination but potentially a vulnerability factor in psychopathology (Luminet, 2004).

On Papageorgiou and Wells' original scale the nine items were rated on four point scale denoting ascending agreement with statements in relation to the helpfulness of rumination in depression, for example: 'I need to ruminate about my problems to find answers to my depression'. They demonstrated concurrent validity of the scale, with numerous measures for example the Beck Depression Inventory ($r = 0.45$) (Beck & Streer, 1987) and the Rumination Scale from the Response Styles Questionnaire ($r = 0.53, p < 0.001$) (Nolen- Hoeksema & Morrow, 1991). Papageorgiou and Wells also demonstrated the stability of the scores on the PBRs over a six week period with a Pearson Product Moment correlation coefficient of $r(58) = 0.85, p < 0.001$.

Watkins and Moulds, (2005) later modified the scale to reduce possible response bias by removing specific references to 'my depression'. Items on the modified scale included: 'I need to think about things to find answers to how I feel' and 'Thinking about the past helps me to work out how things could have been done better'. Watkins and Moulds demonstrated concurrent validity in the modified PBRs with a positive

correlation to the Ruminative Responding Scale ($r = .44$, $p < 0.001$) as well as to the unmodified PBRs ($r = .57$, $p < 0.001$).

The modified PBRs was used here as a phenomenon other than Depression was being explored in relation to rumination beliefs. In the current sample, internal consistency on the PBRs as measured by Cronbach's α was good, at 0.87.

2. 23 Work-Related Rumination Questionnaire (WRRQ; Cropley et al., 2012).

This scale differentiates three approaches to thinking about work. Its 15 items are rated on a five point scale according to reported frequency of ruminations, and form three subscales, each with five items relating to Affective Rumination, Problem Solving Pondering and Detachment. The Detachment subscale has been shown to be strongly and negatively correlated with both the Affective Rumination and Problem Solving Pondering subscales with items including: 'I make myself switch off from work as soon as I leave' (Cropley et al., 2012). An example item on the Problem Solving Pondering subscale is: 'In my free time I find myself re-evaluating something I have done at work'. The Affective Rumination subscale contains items such as: 'Do you become tense when you think about work related issues in your free time?' and 'Do you become fatigued by thinking about work-related issues during your free time?'. Querstret and Cropley (2012) confirmed the factor structure of the questionnaire, and demonstrated reliability with between .81 and .9 for the three factors using Cronbach's α .

There are a number of well validated questionnaires which measure rumination, most notably the Response Styles Questionnaire (Nolen-Hoeksema & Morrow, 1991). The Work-Related Rumination Questionnaire was specifically designed to measure

rumination about work, and was therefore considered most appropriate to the specific context of the Occupational Health setting. Its subscales tied conceptually with those identified in the more widely used Response Styles Questionnaire (Nolen-Hoeksema & Morrow, 1991) as well as potentially allowing for some exploration of how arousal and flexibility might link to different ways of thinking. This supported development of a conceptual model of embitterment in relation to other test variables, particularly Sense of Coherence. Hence this questionnaire was used in this study. While in the current study internal consistency on the subscales of the WRRS was slightly more varied than that shown by Cropley, at $\alpha = 0.75$ for Detachment, $\alpha = 0.81$ for Problem Solving Pondering and $\alpha = 0.91$ for Affective Rumination, it was adequate for all subscales. Internal consistency for the scale as whole was good, at $\alpha = 0.87$.

2. 24 Sense of Coherence Scale (Antonovsky, 1987).

Two Questionnaires are available to measure Antonovsky's Sense of Coherence. A longer 29 item questionnaire, and a briefer 13 item version. In their 2005 systematic review, Eriksson and Lindstrom (2005) showed that between 1992 and 2003 both had been widely used and that they showed a similar level of internal consistency. For the 29 item questionnaire they reviewed 124 studies finding internal consistency between $\alpha = 0.70$ and 0.95 , and for the 13 item version they reviewed 127 studies and found internal consistency between 0.70 and 0.92 . Therefore with respect to participant's time, the 13 item measure was used in the present study.

The 13 items relate to three factors; meaningfulness, manageability and comprehensibility of difficulties, and are answered on a seven point scale with opposing anchoring phrases (e.g. never and always) generating a total Sense of Coherence score. An example item from the comprehensibility factor is: 'Do you

have very mixed up feelings and ideas?’ An example manageability item is: ‘How often do you have feelings you’re not sure you can keep under control?’ and an example meaningfulness item is: ‘Until now your life has had very clear goals and purpose’.

A number of longitudinal studies have indicated Sense of Coherence scores tend to increase and become more stable over time. This has been suggested to be indicative of structural and construct validity, in that older adults might be expected to have a more consistent and coherent understanding of the world (Feldt et al., 2007; Richardson, Ratner & Zumbo, 2007). Internal consistency for the 13 item Sense of Coherence Scale in the present study was good, at Cronbach’s $\alpha = 0.86$.

2. 25 Hospital Anxiety and Depression Scales (HADS; Zigmond & Snaith, 1983).

Depression and Anxiety were assessed as known covariates (Linden et al, 2008a), using the HADS. These have been very widely used and are well validated (Bjelland Dahl, Haug & Neckelmann, 2002). The 14 items are scored on a scale of 0-3. Half of the questions relate to symptoms of Depression, for example: ‘I feel as if I am slowed down’ and half to symptoms of Anxiety, for example: ‘I get sudden feelings of panic’. Total scores of nine or over on the relevant questions indicate the likely presence of Depression or Anxiety with good sensitivity and specificity (Bjelland et al., 2002). This measure was used in the previous study by Sensky et al. (2015) and was also used here, being brief, accessible and freely available.

2. 26 Additional data

Gender, age, and self-reported work absence in the preceding 12 months were also requested in order to attempt to control for major sources of variance, while

acknowledging that self-report data may contain inaccuracies or approximations (Choi & Pak, 2005).

2.3 Procedure

The researcher met with clinical and administrative staff working in Occupational Health to discuss the project protocol before the beginning of the project. It was agreed that administrative staff would give individuals arriving at Occupational Health for appointments a brief information sheet to read prior to their appointment (Appendix 2). A longer information sheet with the experimenter's contact details on it would be explained by Occupational Health clinicians at the end of the appointment and given to participants to take away (Appendix 3).

The teams involved in recruiting participants were multidisciplinary clinical practitioners working in Occupational Health in West London Mental Health NHS Trust, a service which had recently demonstrated a high prevalence of Chronic Embitterment (Sensky et al., 2015) and London North West Healthcare NHS Trust, a neighbouring trust. The teams explaining the study were comprised of a Physician, a Psychiatrist, and six Occupational Health Advisors over the two sites, all of whom were qualified nurses.

Signed consent was requested by Occupational Health clinicians following explanation of the study. Consenting participants were, during a six month period asked to complete questionnaires following their Occupational Health appointments.

Where consent was obtained, participants were then given the questionnaires and an A4 brown envelope in which to place the completed questionnaires. Participants were

instructed to place the completed anonymous questionnaires in a labelled box at the reception which was emptied weekly by the researcher. Occupational Health clinicians left the signed consent forms in a separate box in the reception office and these were also collected and stored securely by the researcher.

2. 31 Intended Sample and generalisability

As responses in this study were anonymous, it was initially intended that confidence in the generalisability of findings would be increased by attempting to ensure that participants reflected the service as far as possible. With this in mind, participants were asked to complete the questionnaires immediately after their Occupational Health appointments and not to take them away. The reason for this is that return rates for postal surveys are poorer, typically around one third of questionnaires returned. A robust example is the 2014 GP patient survey in which 33 percent of 2.6 million postal questionnaires were returned. Non-response is not-random, so bias is introduced and the sample is presumed to become less reflective of the studied population.

In Sensky et al. (2015)'s study which was also an anonymous survey, 235 respondents completed questionnaires in approximately three months. Of these, 29 percent (n = 68) scored as embittered on the Embitterment Questionnaire. This suggested that the planned method was feasible.

2. 32 Difficulties in achieving the intended sample

As the present study progressed it became clear that in the five years since the data published in Sensky et al. (2015) had been collected, working practices within West London Mental Health NHS Trust Occupational Health Department had changed. It was necessary to alter approach to recruitment in light of these changes. Whilst the

researcher had met with clinical and administrative staff working in Occupational Health to discuss the project protocol before the beginning of the project, at that point the service had been unaware of the extent of changes in its working practices since the earlier study. This meant that it was not possible to anticipate the effects of these changes on data collection ahead of the present study.

The principal relevant change was a substantial increase in telephone consultations, with the result that face to face consultations were fewer in number and no longer representative of Occupational Health consultations. The face to face consultations included a greater proportion of staff who had were highly distressed and whom the Occupational Health clinicians therefore commonly considered ineligible to be recruited. Occupational Health Staff recruiting also observed that cuts to services meant that potential participants, increasingly felt less able to devote time to research.

2. 33 Adjustments, leading to the final sample

All of this meant that data collection was unlikely to be fully representative of the service and that the final dataset was likely to be smaller than originally anticipated. Accepting these limitations, which will be discussed further in Chapter 4, the study was adjusted in order to maximise recruitment and power in the available time frame.

Those potential participants who stated that they did not have time to complete the study on site were given the option of taking the questionnaires away and posting them back anonymously in addressed envelopes provided. Those clients who had telephone appointments were asked by their clinicians for consent to post them questionnaires, also to be returned anonymously in addressed envelopes provided. These changes were instituted from November 2015 (Figure 9) and were supported by

the presence of the experimenter on site one day a week to assist in the implementation of the adjusted protocol.

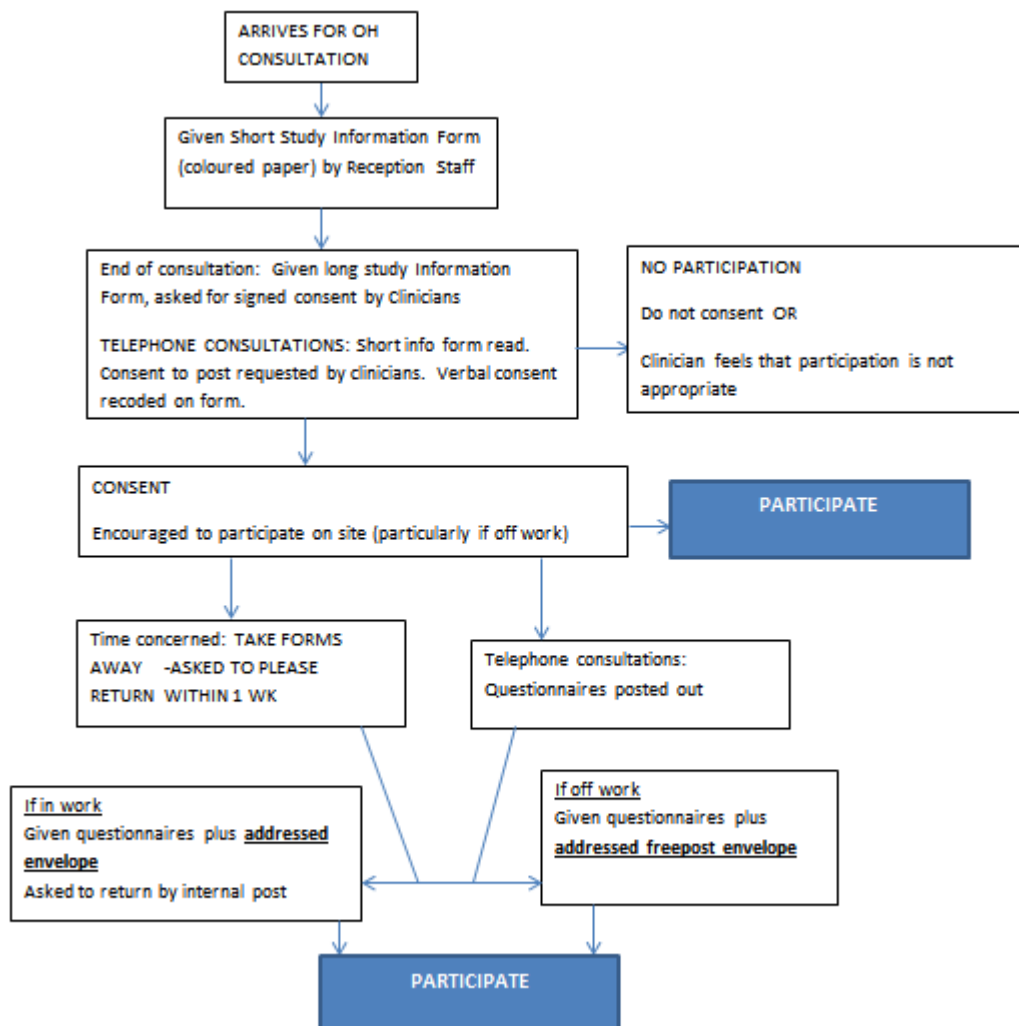


Figure 9. Study Protocol adjusted November 2015

A final step to increase the sample size was the late addition of a second Trust, London North West Healthcare NHS Trust. Here, the study was judged to require Research Ethics Committee (REC) approval which had not been the case in West London Mental Health NHS Trust. While REC approval was obtained, this process increased the time frame prior to the addition of the second NHS Trust and thus

restricted the number of participants recruited from this site within the available timeframe of the present study.

2. 34 Ethical considerations

Clinicians were asked to make it clear when explaining the study to potential participants that participation was entirely voluntary, anonymous and unrelated to treatment, before requesting consent (Appendix 4). That all data were self-reported and anonymous helped to ensure confidentiality, as participants' names were not attached to completed questionnaires at any point. Additionally, there is some evidence that anonymity increases honesty due to a reduction in socially desirable responding (Choi & Pak, 2005).

On participant information sheets the study was referred to as research on the topic of stress at work. Questionnaire titles were omitted in the presented questionnaires. This was largely due to the negative connotations of the term 'embitterment', which was considered to increase the risk of response bias or participant negative experience (Choi and Pak, 2005). This decision was detailed in each research application. Given that responding to the questionnaires could conceivably cause distress, conducting the study in an NHS Occupational Health setting carried the assurance that participants had access to appropriate support and this was reiterated in the Participant Information Sheet (Appendix 3).

Approval for the study in West London was granted by Royal Holloway, University of London, and West London Mental Health NHS Trust Research and Development Office in August 2015 (Appendix 5a). In West London Mental Health NHS Trust the study was approved by the Research and Development Office as this trust took the

view that because the present study involved staff rather than patients, approval from a Research Ethics Committee was not required. For London North West Healthcare NHS Trust, discussion by a Research Ethics Committee was requested. This was due to uncertainty over whether NHS staff attending Occupational Health should be regarded as staff or patients for the purpose of research.

Following discussion with the Ethics Committee a slight change was made to the study protocol for London North West Healthcare NHS Trust. This was that non walk in clients were sent the short study information form along with their appointment letters to give them further time to think about whether they wished to participate. With this amendment the study was approved by Chelsea Research Ethics Committee in February 2016 (Appendix 5b). Research and Development approval for London North West Healthcare NHS Trust followed in March 2016 (Appendix 5c).

2.35 Funding

Royal Holloway University provided funding for production of all questionnaires as well as consent and information forms and envelopes. Forms were produced in the Clinical Psychology Department at Royal Holloway and then delivered to Occupational Health in West London Mental Health NHS Trust and London North West Healthcare NHS Trust by the researcher.

2.36 Piloting

A pilot study (n=5) took place in West London Mental Health NHS Trust Occupational Health department prior to the beginning of data collection in September 2015. The study was explained to potential participants (staff attending appointments at Occupational Health on that day) by the researcher. They were asked

to complete the questionnaires to be used in the study and to give their feedback on the questionnaires and their experience of completing them.

Seven individuals were asked to participate in the pilot. One stated that they did not have time to participate and one was unable to participate due to an eyesight problem. The remaining five completed the questionnaires, reporting no upset or difficulty associated with the questionnaires. A trial completion of the questionnaires by the experimenter had taken seven minutes and time taken was therefore initially estimated to participants at around ten minutes. Initial participants took closer to 20 minutes than ten to complete questionnaires and the study information was updated to reflect this. Those who completed the questionnaires reported that they felt the length of time taken was acceptable and not too long. The five completed sets of questionnaires from the pilot were included in the final dataset.

2. 4 Data Analysis

All of the data collected were entered by the researcher and analysed using SPSS v21. Data were checked prior to analysis guided by suggested procedures in Tabachnick and Fidell (2013), for example checking responses against questionnaire ranges in case of erroneous answers. Questionnaires were scored by the researcher and scores on negatively worded items on the Sense of Coherence Scale and the WRRQ were reversed as appropriate. The internal consistency of questionnaires was calculated using Cronbach's α . Total values were calculated for Sense of Coherence, embitterment, PBRS and the HADS as well as subscale scores for the WRRQ (Affective Rumination, Problem Solving Pondering and Detachment) and the HADS (Anxiety and Depression). These data along with Self-reported Age, Gender and

number of days of Self-reported Work Absence were entered as variables in SPSS v21. Chronic Embitterment, Anxiety, Depression and Age were also entered as categorical variables relating to whether an individual scored above defined cut off scores.

2. 41 Power

Due to limited literature in relation to the associations being explored here, effect sizes and therefore the necessary sample were difficult to predict. Cohen (1992) indicates that for multiple regression with four independent variables as was planned here, specifying $\alpha = 0.05$ and Power = 0.8, a sample of $n = 84$ should provide adequate statistical power to detect a medium sized effect. If the data had proven to have a non-normal distribution as was the case for Sensky et al. (2015), a larger sample would have been necessary (Tabachnick & Fidell, 2013).

2. 42 Hypothesis testing

Staff who scored above 1.6 on the Embitterment Questionnaire, were predicted to show significantly higher levels of Affective Rumination, Positive beliefs about rumination and significantly lower levels of Sense of Coherence than those who scored below 1.6. These comparisons were made using independent T-tests.

To establish the predicative power of studied variables in determining embitterment, bivariate correlations between Positive beliefs about rumination, Sense of Coherence, Affective Rumination and embitterment as a numerical variable were first carried out. Where significant relationships existed, data was then explored further in hierarchical regression analysis. This was in order to establish differing contributions and possible mediating relationships while controlling for potential confounds (Tabachnick & Fidell, 2013).

Chapter 3: Results

3. 1 Summary of analysis

In initial exploration of the data, their accuracy and normality was assessed, checking for normal distribution, variability in scores, missing data and outlying data points. A correlation matrix was performed in order to explore the relationships between variables, with the purpose of identifying multicollinearity and potential confounders. The possibility of chance significance as the result of multiple comparisons was considered. Given the smaller than expected sample size it was indicated that the application of a Bonferroni correction would be overly conservative and would inflate the chances of type II error. A significance level of $p < 0.01$ was therefore applied to correlations. This was more stringent than the conventional level of $p < 0.05$ but less stringent than a Bonferroni correction would have been, which was considered an acceptable compromise in mitigating the risk of both type I and type II error (Howell, 2002; Barker, Pistrang & Elliot, 2002).

When the quality of the data was established, measurements were next reviewed which were considered to be possibly informative about the sample but which were not part of experimental hypotheses. Descriptive data and the possibility of confounding where relevant was explored in the relation to each of the following: Gender, Age, Self-reported Work Absence, the Problem Solving Pondering and Detachment subscales of the WRRS and finally HADS (Anxiety and Depression).

Next descriptive statistics in relation to the key study variables; Affective Rumination on the WRRS, Positive Beliefs about Rumination, Sense of Coherence and scores on the Embitterment Questionnaire were explored, followed by hypothesis testing.

In order to protect the familywise error rate in hypothesis testing, regression analysis took place only where Pearson correlations indicated significant relationships.

A number of variables were categorical, for example gender, or were numerical with a categorical aspect, for example Depression on the HADS. Where two sets of scores were being compared, for example embitterment scores in men and women this was done using independent t-tests. On these occasions each group was checked for normality prior to analysis. Where a number of t-tests were performed in the exploration of a single hypothesis, as applies to Hypothesis 1, with three tests, the Bonferroni method was used to protect the significance level against the possibility of increased type 1 error. Otherwise, $p < 0.05$ was taken as significant. Recognising the limitations of significance testing in interpreting results effect sizes are also provided where possible in order to further inform the reader (Cohen, 1994; Barker et al., 2002).

3. 2 Data Checking

3. 21 Missing Data

A very small number of questionnaire items were missed (Table 2). Tabachnick and Fidell (2013) suggest that if less than 5 percent of data for any item is missing it may be appropriate to substitute averages based on the individual's overall score for that questionnaire to act as replacement values. This was done for missing items in the present study prior to analysis. As all questionnaires were validated and no item was missed consistently no further exploration was conducted in relation to missing data.

Table 2. Missing data

	Number of missing items / total number of questionnaire items
Embitterment Questionnaire	5 / 1501
PBRS	2 / 711
WRRS	4 / 1185
Sense of Coherence Questionnaire	3 / 1027
HADS	0 / 1106

3. 22 Outliers

Outliers represent points of data which deviate markedly from other observations. They can indicate problems with the data or errors in data entry and are important to identify as their presence can lead to the production of statistics which do not accurately reflect the data (Field, 2013). Outliers can be identified by assessing the variability of standardised Z-scores. These give a measure of how far each individual score differs from the mean in terms of standard deviations. Z-scores greater than 3.29 indicate the presence of an outlier (Tabachnick & Fidell, 2013). Z-scores were calculated for total or subscale scores for each measure as appropriate. Results indicated that there were no univariate outliers reaching the criterion of 3.29 standard deviations from the mean. Table 3 shows minimum and maximum Z- score totals. While a score close to the 3.29 criterion was noted on the Sense of Coherence Questionnaire, investigation of this data point indicated the score was technically possible and theoretically consistent with how this participant had scored the other measures. Therefore no data points were removed prior to analysis.

Table 3. Minimum and maximum Z-score totals (n=79 unless otherwise stated)

	Minimum	Maximum
Embitterment Questionnaire	-1.42	2.00
PBRS	-2.44	1.40
WRRS <i>Affective Rumination</i>	-2.09	1.95
<i>Problem Solving Pondering</i>	-2.58	2.20
<i>Detachment</i>	-2.70	2.38
Sense of Coherence Questionnaire	-3.18	1.78
HADS	-1.50	2.63

3. 23 Normality of Data

Each continuous variable was explored visually in relation to the distribution of scores in order to ascertain whether any obviously non- normal distributions existed which would violate the assumptions of parametric tests. Further analysis in relation to each of the variables under investigation indicated no significant skew or kurtosis, as would be indicated by z-scores greater than 2.58 (Field, 2013). The assumptions of parametric tests were thereby fulfilled. Table 4 shows skew and kurtosis for the study measures. Distributions of categorical variables, subgroups other collected variables are reported in discussion of those variables.

Table 4. Normality of data (z-scores)

		Skew	Kurtosis
Embitterment Questionnaire		1.03	- 1.45
PBRs		- 2.09	- 0.85
WRRS	<i>Affective Rumination</i>	- 0.58	- 1.08
	<i>Problem Solving Pondering</i>	0.62	1.08
	<i>Detachment</i>	-0.97	0.34
Sense of Coherence Questionnaire		- 2.36	- 1.07
HADS		2.08	- 0.37

3. 24 Multicollinearity

Multicollinearity, a high degree of correlation between variables is considered problematic when the correlation is above $r = 0.9$ (Field, 2013). This might suggest that a variable is redundant as several appear to be measuring the same thing. The presence of multicollinearity here might suggest a problem either with the suggested model of Chronic Embitterment, or the measurement tools used. Therefore, a correlation matrix was run in relation to studied variables and potential confounders, yielding the result that no two variables were correlated above 0.73 (Table 5).

Table 5. Pearson correlations demonstrating absence of multicollinearity (n=79 unless otherwise stated)

	HADS	Self-reported age (n=76)	Self- reported work absence (n=75)	Embitterment	Sense of Coherence	Affective Rumination	PBRs	Detachment
Self-reported age	.26							
Self-reported work absence	.12	.35* (n = 72)						
Embitterment	.68*	.37*	.05					
Sense of Coherence	-.73*	-.09	-.03	-.66*				
Affective Rumination	.61*	.26	-.02	.50*	-.57*			
PBRs	.10	.06	-.16	.15	-.10	.26		
Detachment	-.53*	-.20	-.03	-.43*	-.43*	-.56*	-.19	
Problem Solving Pondering	.27	.21	.01	.22	-.10	.41	.46*	-.56*

*correlation significant at the $p < .01$ level

3. 3 Additional data and potential confounding variables

Descriptive data in relation to each of the following in turn were explored: Gender, Age, Self-reported Work Absence, the Problem Solving Pondering and Detachment subscales of the WRRS and finally HADS, Anxiety and Depression. Possible confounding was also explored, prior to beginning analysis of study hypotheses.

To be considered a potential confounder, a variable must be both related to the independent variable of interest, in this instance Affective Rumination, Positive beliefs about rumination or Sense of Coherence, and have a real effect on the dependant variable: embitterment score (Campbell & Machin, 1993). Correlations can be seen in Table 5.

Where there was a risk of confounding, indicated by a significant relationships to both dependent and independent variables, these variables were controlled for in the final hierarchical regression. This enabled the assessment of unique contributions of studied variables in predicting embitterment.

3. 31 Gender

Seventy one participants reported their gender. More women than men took part in the study, in the ratio of 2.08:1. Men ($n = 23$) had a mean embitterment score of 1.77 ($SD = 1.13$) and women ($n = 48$) had a mean embitterment score of 1.39 ($SD = 0.98$). Both groups of scores were normally distributed. Male skew was $z = 0.04$, kurtosis = -1.19 and female skew was 1.22, kurtosis = -1.11, all of which are within the accepted bounds of normal distribution suggested by Field (2013), ($z < 2.58$).

An independent t-test was used to compare embitterment scores of men and women. Homogeneity of variance assumptions were met ($F = 0.75$, $p = 0.39$), but there was no

significant difference between the groups ($t(69) = 1.46, p = 0.15$). As gender did not show a significant relationship to embitterment, it was not explored further in relation to the independent variables or included as a covariate in subsequent analysis.

3.32 Age

Seventy six participants self-reported their age. Ages ranged from 22 to 65 with a mean of 44 ($SD = 12.28$), and formed a normal curve, with skew = - 0.03, and kurtosis = - 1.41 (Figure 10). A Pearson correlation indicated that age was significantly positively correlated with embitterment score ($r(74) = 0.37, p = 0.001$). Just under 14 per cent of the variance in these two variables was shared.

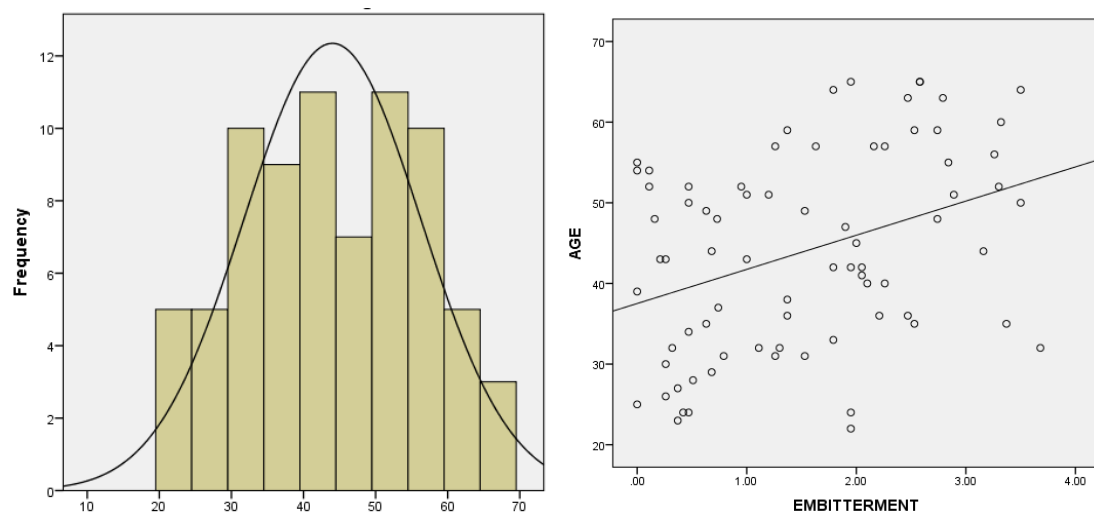


Figure 10. Age distribution and relation to embitterment score

In Sensky et al. (2015) age was treated as a categorical variable with those over and under 40 compared, and was not found to be associated with embitterment. To give an indication of whether this difference in findings was primarily a function of measurement, self-reported age was also converted into two subgroups of over and under 40 here. In doing this, we found that both groups were normally distributed with skew and kurtosis in acceptable bounds (Field, 2013), that homogeneity of

variance assumptions were met ($F = 0.74$, $p = 0.39$), and that the difference between the groups was still significant at the $p < 0.05$ level ($t(74) = -2.34$, $p = 0.02$).

Descriptive statistics for the two age groups are shown below (Table 6).

Table 6. Descriptive statistics for over and under 40's in relation to embitterment

Age	N	Embitterment Mean (SD)	Skewness z-score	Kurtosis z-score
UNDER 40	29	1.18 (0.98)	2.32	0.70
OVER 40	47	1.75 (1.07)	-0.04	-1.27

As a result of the observed relationship between Self-reported Age and embitterment, we looked for relationships with the independent variables to explore the possibility that age would act as a confounder. While it was noted that age had a positive correlation with Affective Rumination which neared significance ($r(74) = 0.26$, $p = 0.02$) this, along with correlations with Positive beliefs about rumination ($r(74) = 0.06$, $p = 0.60$) and Sense of Coherence ($r(74) = -0.09$, $p = 0.44$) failed to reach significance at the $p < .01$ level (Table 5). It was therefore concluded that Self-reported Age should not be considered a confounder in the current study and it was not included as a covariate in subsequent analysis.

3. 33 Self-reported Work Absence

Number of days of Self-reported Work Absence in the 12 months prior to questionnaire completion was provided by 75 respondents. Responses ranged from zero to 140 days, with a median of 11 days. While kurtosis for self-reported work absence was within acceptable bounds ($z = 1.86$), this variable showed a significant positive skew ($z = 5.76$). In order to run the planned Pearson correlation to assess for

the presence of any relationship between self-reported work absence and the dependent or independent variables in the present study a square root transformation was used to adjust Self-reported Work Absence to bring the skew within the range required for parametric testing. The adjusted z- scores for skew and kurtosis were 1.90 and -1.09 respectively.

The correlations shown in Table 5 were performed on the transformed variable. Bivariate correlations on the adjusted data indicated that self-reported work absence did not show a significant relationship to embitterment, the dependent variable, in this sample ($r(73) = .05, p = 0.67$). Table 5 shows that this variable also did not show significant correlations with any of the independent variables in the present study. This demonstrated that self-reported absence was not a confounder here. Therefore absence was not included as a covariate in subsequent analysis.

3. 34 Detachment and Problem Solving Pondering subscales of the WRRS

In addition to the independent variable Affective Rumination, the WRRS (Cropley et al., 2012) contains two other subscales, Problem Solving Pondering and Detachment. Reflecting on the good internal consistency of the WRRS (Cronbach $\alpha = 0.87$), the relationships of the additional subscales to Affective Rumination and other key study variables were considered in the present study.

On each subscale the maximum score is 25. Both the additional subscales showed a normal distribution with skew and kurtosis scores within the acceptable range for normality (Table 4).

Table 7. Descriptive statistics for additional subscales of the WRRS

	N	Minimum Score	Maximum Score	Mean (SD)
Problem Solving Pondering	79	5	24	15.25 (3.97)
Detachment	79	5	25	15.63 (3.94)

As shown in Table 5, the Detachment subscale showed a strong negative correlation with the dependent variable embitterment ($r(77) = -0.44, p < 0.001$) as well as with independent variables Sense of Coherence ($r(77) = 0.43, p < 0.001$) and Affective Rumination ($r(77) = -0.58, p < 0.001$). In order to identify if Detachment contributed variance unaccounted for by the suggested model of embitterment the independence of Detachment's relationship to embitterment was explored.

When the effects of Affective Rumination or Sense of Coherence were partialled out, it was found that the relationship of Detachment to embitterment lost significance ($r(76) = -0.21, p = 0.07$; $r(76) = -0.22, p = 0.06$). Conversely, if the effects of Detachment were partialled out, it was found that both Affective Rumination ($r(76) = 0.34, p = 0.002$) and Sense of Coherence ($r(76) = -0.58, p < 0.001$) retained significant relationships to embitterment. It was therefore concluded that the variance that Detachment shared with embitterment was accounted for in the suggested model of embitterment by the independent variables Affective Rumination and Sense of Coherence.

Despite having a strong positive correlation with Affective Rumination ($r(77) = 0.41, p < 0.001$) the Problem Solving Pondering subscale of the WRRS differed from

Affective Rumination in its highly significant relationship to scores on the PBRs ($r(77) = 0.46, p < 0.001$, Table 5), also an independent variable in the proposed model of Chronic Embitterment (Figure 8). The Problem Solving Pondering subscale of the WRRS was not found to be significantly related to embitterment using the corrected significance level of $p < 0.01$ ($r(77) = 0.22, p = 0.05$). Like the Detachment subscale, it was therefore not included in subsequent analysis.

3. 35 HADS, Anxiety and Depression

All 79 participants completed the HADS Anxiety and Depression subscales. Total scores ranged from zero to 40 of a possible 42, with a mean of 14.53 ($SD = 9.69$) and were normally distributed (Table 5). A Pearson correlation was used to explore the significance of the relationship between HADS total score and embitterment. A highly significant positive correlation with embitterment was found ($r(77) = 0.68, p < 0.001$). Forty seven percent of the variance in these two variables was shared. As well as a significant relationship with embitterment, HADS was strongly correlated with the independent variables Sense of Coherence ($r(77) = -0.73, p < 0.001$) and Affective Rumination ($r(77) = 0.61, p < 0.001$), meaning that it was a likely confounder.

Depression scores ranged from 0-19 of a possible 21 with a mean of 5.95 ($SD = 4.88$). Anxiety scores ranged from 0-21 of a possible 21 with a mean of 8.58 ($SD = 6.23$). Both the Anxiety ($r(77) = 0.633, p < 0.001$) and Depression subscales ($r(77) = 0.631, p < 0.001$) showed significant positive correlations with embitterment, of very similar size, each sharing close to 40 percent variance with embitterment.

Independent t-tests were used to explore the relationship between caseness for Anxiety and Depression and embitterment. Forty seven percent of the sample scored above the clinical cut off for anxiety ($n = 37$). The mean embitterment score for the

Anxious group was 2.01 (SD = 0.96), and for the non-Anxious group 1.01 (SD = 0.89), a highly significant difference ($t(77) = -5.35, p < 0.001$). Homogeneity of variance assumptions were met ($F = 0.13, p = 0.73$).

Twenty five percent of participants scored at a level consistent with clinically significant Depression ($n = 20$). The mean embitterment score for the Depressed group was 2.43 (SD = 0.89), and the mean embitterment score for the non-Depressed group was 1.22 (SD = 0.96). Again this was a significant difference ($t(77) = -4.97, p < 0.001$) and again, homogeneity of variance assumptions were met ($F = 0.66, p = 0.42$).

There was a very high degree of overlap between the Anxiety and Depression subscales and the HADS combined score. Above a correlation of 0.9, two variables can be considered to be effectively measuring the same thing. Anxiety and HADS total ($r(77) = 0.94, p < 0.001$) and Depression and HADS total ($r(77) = 0.92, p < 0.001$) both correlated above this threshold for multicollinearity. Therefore, the combined score was used to control for Anxiety and Depression in subsequent analysis.

3.36 Summary of additional data and potential confounds

Neither Gender nor Self-reported Work Absence nor the Problem Solving Pondering subscale of the WRRS were significantly related to embitterment in this sample.

When common variance with the studies independent variables was partialled out, the Detachment subscale of the WRRS also lost its significant association with embitterment. While Self-reported Age was significantly correlated with embitterment score, it was not significantly correlated with any of the independent

variables in the present study and was therefore not considered a potential confounder.

The HADS as expected, showed a strong relationship with embitterment. This applied to the total score as well as to both the Anxiety and Depression subscale scores. When treated as categorical, the presence of Anxiety and Depression on the HADS showed strongly significant associations with embitterment. HADS was also significantly correlated with independent variables Affective Rumination and Sense of Coherence. HADS total score was therefore a potential confounder and was controlled for in step 1 of the subsequent hierarchical regression analysis.

3. 4 Findings in relation to Hypotheses

The variables under investigation in relation to the proposed model of Chronic Embitterment being explored (Figure 8) were Positive beliefs about rumination, Affective Rumination, Sense of Coherence and embitterment. All were normally distributed (Table 4). Descriptive statistics for these variables are shown in Table 8.

Table 8. Descriptive Statistics for key study variables

	N	Min (possible)	Max (possible)	Mean	SD
Embitterment	79	0 (0)	3.68 (4)	1.57	1.08
Affective Rumination	79	5 (5)	25 (25)	15.35	4.95
Positive beliefs about rumination	79	12 (9)	36 (36)	27.26	6.26
Sense Of Coherence	79	14 (13)	83 (91)	58.24	13.93

Findings in relation to each of the three study hypotheses are discussed in turn below.

3. 41 Hypothesis 1: NHS Staff attending Occupational Health who score as having Chronic Embitterment, will differ from those who do not score as having Chronic Embitterment in that they will show

- i.) significantly higher levels of Affective Rumination
- ii.) significantly more Positive beliefs about rumination
- iii.) significantly lower levels of Sense of Coherence

Sense of Coherence scores, Affective Rumination scores and Positive beliefs about rumination scores of participants were compared for participants scoring above and below the 1.6 cut off indicating the presence of Chronic Embitterment. Descriptive statistics indicated that between group differences were in expected directions. There was no significant skew or kurtosis in the distribution of any group of scores (Table 9).

Table 9. Descriptive Statistics of independent variables in relation to embitterment group

		Embitterment (n = 36)	No Embitterment (n = 43)
Affective Rumination	Mean (SD)	17.47 (4.7)	13.57 (4.4)
	Z-score skew	-1.27 ns	-0.26 ns
	Z-score kurtosis	-0.41 ns	-1.15 ns
PBRs	Mean (SD)	28.06 (6.2)	26.59 (6.3)
	Z-score skew	-1.64 ns	-1.48 ns
	Z-score kurtosis	-0.58 ns	-0.72 ns
Sense of Coherence	Mean (SD)	49.42 (12.8)	65.63 (10.0)
	Z-score skew	-2.04 ns	-0.57 ns
	Z-score kurtosis	0.86 ns	-1.06 ns

Independent t-tests were used to assess the significance of between group differences.

A Bonferroni corrected significance level of $p < 0.17$ was applied for three tests performed. Means and standard deviations were used to calculate effect sizes (Becker, 1999).

For Affective Rumination, homogeneity of variance assumptions were met ($F = 0.7$, $p = 0.80$). Those scoring as embittered showed significantly higher levels of Affective Rumination than those not scoring as embittered ($t(77) = -3.78$, $p < 0.001$). The effect size was calculated as Cohen's $d = 0.86$, which is a large effect.

For Positive beliefs about rumination, homogeneity of variance assumptions were again met ($F = 0.08$, $p = 0.93$), however there was no significant difference between

the embittered and non-embittered groups in relation to Positive beliefs about rumination score ($t(77) = -1.03, p = 0.30$). The effect size was $d = 0.24$, which is a small effect.

For Sense of Coherence, homogeneity of variance assumptions were met ($F = 0.87, p = 0.35$) and those scoring as embittered showed significantly lower Sense of Coherence than those not scoring as embittered ($t(77) = 6.3, p < 0.001$). The effect size was $d = -1.41$, which is a very large effect.

In relation to Hypothesis 1 it was identified that, as anticipated, those participants scoring as having Chronic Embitterment had significantly higher levels of Affective Rumination and significantly lower levels of Sense of Coherence than those not scoring as embittered. There was no significant difference between the embittered and non-embittered groups in Positive beliefs about rumination however, so this hypothesis was only partially supported. Effect sizes supported these findings with the largest effect seen in relation to Sense of Coherence and Chronic Embitterment, and only a small effect seen in relation to Positive beliefs about rumination and Chronic Embitterment.

3. 42 Hypothesis 2: Positive beliefs about rumination will show a positive relationship with Chronic Embitterment, mediated by the presence of Affective Rumination.

Pearson's correlation was used to test for significance in the bivariate relationship between Positive beliefs about rumination and embitterment as a continuous variable. No significant relationship was found ($r(77) = 0.15, p = 0.19$).

As the sample was somewhat smaller than anticipated, the possibility of a type II error was considered. In this scenario, the relatively small size of the sample would be precluding finding a substantive effect, as the result of inadequate experimental power. The question was whether, if the larger sample that was predicted based on Sensky et al. (2015) had been achieved the effect would have then been significant. The effect size for the difference in Positive beliefs about rumination scores in those with and without embitterment was considered in order to assess the likelihood of this. For an effect size of less than $d = 0.2$, Cohen (1992) suggests that an effect is so small as to be irrelevant, even if it reaches significance. Here, in relation to Positive beliefs about rumination and embitterment, what was found was that the effect was only a little bigger than this at $d = 0.24$. This is a small effect which Cohen's power tables, specifying $\alpha = 0.05$ and power = 0.8, suggest might require in the region of $n = 600$ to achieve statistical significance in a study such as this one. It was concluded that the null effect found in relation to hypothesis 2 was principally the result of a small effect size, as opposed to a type II error.

Given the above, the data was not found to support hypothesis 2. To protect the family-wise error rate, Positive beliefs about rumination was not included in any subsequent regression analysis.

3. 43 Hypothesis 3: Sense of Coherence will show a negative relationship with Chronic Embitterment, which will be mediated by the presence of Affective Rumination.

Pearson correlations were used to check for significance of bivariate relationships in the first instance. Sense of Coherence score showed a highly significant negative

correlation with embitterment score, sharing 44 percent variance ($r(77) = -.66, p < 0.001$). Sense of Coherence and Affective Rumination were also strongly correlated, sharing 32 percent variance ($r(77) = -.57, p < 0.001$). Finally, Affective Rumination also showed a highly significant relationship to embitterment ($r(77) = .50, p < 0.001$) sharing 25 percent variance. Correlation coefficients in relation to key study variable are illustrated in Figure 11.

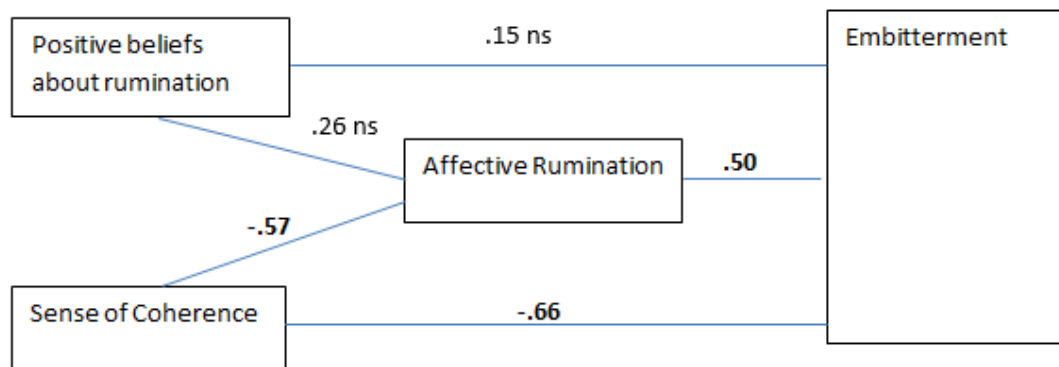


Figure 11. Diagram showing correlation coefficients for key study variables

Following Baron and Kenny's (1986) steps for mediation analysis, the independent variable, Sense of Coherence, was first regressed on the dependent variable, embitterment. This was done to confirm that Sense of Coherence was a significant predictor of embitterment. A significant regression equation was found ($F(1, 77) = 59.06, p < 0.001$), with an R^2 of 0.43.

The suggested mediator, Affective Rumination, was then regressed against Sense of Coherence to confirm that Sense of Coherence was a significant predictor of Affective Rumination. If these two variables were not significantly related there could be no mediation. A significant regression was found ($F(1, 77) = 36.01, p < 0.001$), with an R^2 of 0.31.

Next, a multiple regression was carried out in which embitterment as the dependant variable was regressed on both Affective Rumination, the mediator, and Sense of Coherence, the independent variable, in order to confirm the significance of Affective Rumination in predicting embitterment while controlling for Sense of Coherence. If mediation was occurring this step would demonstrate that the previously highly significant predictive relation shown between Sense of Coherence and embitterment was greatly reduced if not insignificant, when the effects of the mediator, Affective Rumination were controlled for. In this scenario Affective Rumination would be expected to preserve a significant independent relationship with embitterment.

The model showed that the two combined variables, Sense of Coherence and Affective Rumination accounted for a significant portion of the variance in embitterment. ($R^2 = 0.46$, adjusted $R^2 = 0.44$; $F(2, 76) = 32.11$, $p < 0.001$). The partial regression coefficients showed that Sense of Coherence had retained a highly significant unique contribution to embitterment ($B = -0.04$, $\beta = -0.55$, $t(76) = -5.40$, $p < 0.001$). Affective Rumination however, did not show an independent association with embitterment when Sense of Coherence was controlled for ($B = 0.04$, $\beta = 0.18$, $t(76) = 1.83$, $p = .071$). Therefore the model showed a highly significant relationship to the dependent variable, embitterment, which was largely carried by Sense of Coherence.

In order to control for the effects of the potential confound that was established as having a significant relationship with embitterment Affective Rumination and Sense of Coherence, the analysis was re-run as a hierarchical regression with HADS score entered at step one in order to partial out its contribution to embitterment score.

Again, embitterment was entered as the dependent variable and Sense of Coherence

and Affective Rumination as the predictor variables. The aim was to see what the combined predictive power of Sense of Coherence and Affective Rumination was once the potential confounder of HADS score had been controlled for.

HADS total score, at step 1, contributed a significant portion of variance in embitterment score ($F(1, 76) = 65.75, p < 0.001; R^2 = 0.46, \text{adjusted } R^2 = 0.46$). More importantly, the predictor variables at step two contributed an increase in variance explained from 46% to 53%, $\text{adjusted } R^2 = 0.51$, a change that was significant ($F(3, 74) = 27.36, p < 0.001$). In the final equation HADS ($B = 0.04, \beta = 0.39, t(74) = 3.12, p = 0.002$) and Sense of Coherence ($B = -0.03, \beta = -0.34, t(74) = -2.81, p = 0.006$) made significant unique contributions to embitterment score, but Affective Rumination did not ($B = 0.02, \beta = 0.07, t(74) = 0.68, p = 0.5$).

Given that Affective Rumination did not show a significant unique predictive relationship to embitterment it was not possible to claim that this variable was mediating the independent relationship between Sense of Coherence and embitterment. Hypothesis 3 was therefore not supported. Rather, the data suggested that Sense of Coherence mediated the relationship between Affective Rumination and embitterment in this study. When Sense of Coherence was controlled for, the relation between Affective Rumination and embitterment lost significance. This effect endured even when the effects of the potential confounder variable HADS was controlled for.

3. 5 Summary of Results

Positive beliefs about rumination did not show significant relationships with either the Affective Rumination subscale on the WRRS or scores on Linden's Embitterment Questionnaire as had been predicted.

The Affective Rumination subscale of the WRRS did show a relationship with embitterment, however this was found to be secondary to its overlap with HADS and Sense of Coherence. When the effect of either HADS or Sense of Coherence was controlled for, Affective Rumination was not significantly predictive of embitterment on the Embitterment Questionnaire.

Sense of Coherence score showed a relationship to embitterment score independent of Affective Rumination and HADS. Thus, of the three independent variables only one, Sense of Coherence, demonstrated a unique predictive relationship to embitterment as captured by Linden's Embitterment Questionnaire.

Chapter 4: Discussion

4.1 Summary of findings

Chronic Embitterment is prevalent in NHS settings and potentially costly and damaging. The aim of conducting this study was to establish empirically some of the psychological processes which may underlie it. This was considered to be a helpful way of progressing prevention and treatment for Chronic Embitterment, which would have potentially myriad benefits to NHS organisations, staff, patients and the taxpayer.

The present study tested three specific hypotheses in relation to processes which may predict or mediate embitterment based on the existing literature. These related to three key study variables: Affective Rumination, Positive beliefs about rumination and Sense of Coherence. These were psychological processes, which had been identified as possibly showing predictive relationships to embitterment. All were measured through questionnaires which had demonstrated evidence of validity in previous studies (Linden et al., 2009; Papageorgiou & Wells, 2002; Cropley et al., 2012; Eriksson and Lindstrom, 2005; Zigmond & Snaith, 1983).

Firstly, the present study sought to establish that NHS Staff attending Occupational Health who scored as having Chronic Embitterment, showed significantly higher levels of Affective Rumination, Positive beliefs about rumination and significantly lower levels of Sense of Coherence than those who do not score as having Chronic Embitterment. This was to establish that the clinical presentation was associated with the study variables. It was identified that only Affective Rumination and Sense of Coherence differed significantly depending on the presence of Chronic Embitterment. Participants who scored as having Chronic Embitterment had significantly lower

scores on the 13 item Sense of Coherence Scale, and significantly higher scores on the Affective Rumination subscale of the WRRS, but they did not differ significantly on the PBRs.

It was also hypothesised that Positive beliefs about rumination would show a positive relationship to embitterment, mediated by the presence of Affective Rumination. The data did not support either aspect of this hypothesis. Positive beliefs about rumination was not significantly correlated with either Affective Rumination or embitterment in this study.

Finally, it was hypothesised that Sense of Coherence would show a negative relationship to embitterment, which would be mediated by the presence of Affective Rumination. Sense of Coherence did show a strong relationship with embitterment, as did Affective Rumination. The relationship between Sense of Coherence and embitterment was stronger than that between Affective Rumination and embitterment however. Mediation was thus not found in the predicted direction. Rather, Sense of Coherence mediated the relationship between Affective Rumination and embitterment (Figure 12). Therefore this hypothesis was not supported.

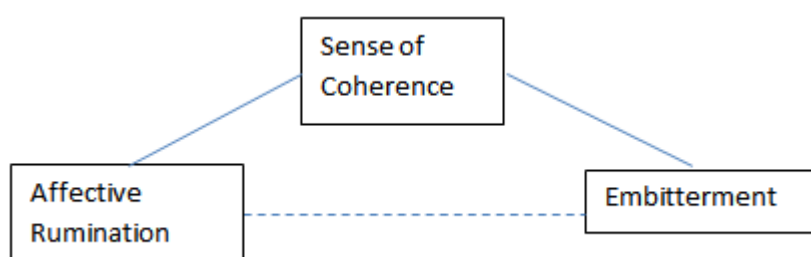


Figure 12. Mediated relationship between Affective Rumination and embitterment

While none of the hypotheses were fully supported by the data, the findings were interesting, surprising and potentially useful in a number of regards.

Firstly, a broad summary of the strengths and limitations of the study will be given. Findings in relation to study variables will then be discussed in detail. Finally the meaning and implications of the data and theory to date will be reconsidered in relation to Chronic Embitterment in the NHS, in terms of possible applications and future research.

4.2 Strengths and Limitations

A notable strength of the present study was its novelty and utility. In Sense of Coherence a specific psychological characteristic which appears to underpin Chronic Embitterment, was empirically linked to it for the first time. All questionnaires used in the present study had been validated in peer reviewed journals and the simple design of the present study should facilitate replication in other samples.

So far as it was possible to ascertain from careful reading of the papers the scale is derived from (Cropley & Zijlstra, 2011; Querstret & Cropley, 2012) the WRRS had not been directly compared to the more commonly used Response Styles Questionnaire (used by Mills et al., 2014) to establish convergent validity. The findings of the present study offer some further evidence which supports the validity of the WRRS constructs. That rumination is strongly correlated with prolonged negative mood states in general, depression in particular, is well established (Brosschot et al., 2006; Nolen-Hoeksema et al., 2008). That Affective Rumination on the WRRS had a significant relationship to HADS score in this study ($r(77) = 0.36, p$

= 0.001) was therefore reassuring, in terms of the Affective Rumination Subscale of the WRRS having construct validity. Problem solving on the Response Styles Questionnaire, as opposed to rumination, does not predict the duration of negative mood states (Treynor et al., 2003). Similarly Problem Solving Pondering on the WRRS in this study was not significantly correlated to Anxiety and Depression on the HADS at the $p < 0.01$ level which was used here for correlations ($r(77) = 0.26$, $p < 0.02$). This may also be taken as an indication of construct validity.

The present data have provided useful information on the nature of rumination which may have implications beyond the sphere of embitterment and which are discussed further in relation to the PBRS and WRRS below. The eventual sample, although smaller than planned, produced several large effect sizes. The key study objective of gaining further information about the psychological influences of embitterment was fulfilled by this sample. The smaller than intended size was therefore cost effective for the NHS, in terms of participants' time.

An important limitation of the present study, was that in a cross sectional exploration causation cannot be established. Therefore the direction of relationships between studied variables could only be inferred. All variables in the present study were measured through self-report questionnaires. A potential limitation in this form of measurement was that using questionnaires as proxies for psychological variables inevitably confers a degree of error. This is the difference between a construct of interest and the accuracy with which it is measured (Barker et al., 2002).

Elsewhere it has been noted that 'common method variance', measuring a number of different things by the same method, can increase correlations between variables as the result of rote responding (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003).

Systematic error variance of this type can potentially offer an alternative explanation for observed variable relationships (Bagozzi & Yi, 1991). In this study each questionnaire had a different scale and varied in visual presentation (Appendix 1). Systematic variance due to a common method was minimised in this way.

In the study setting, the current sample highlighted changes to services since 2009 when Sensky et al. (2015) gathered their data. These changes related to staff workload, higher numbers of telephone consultations and therefore reduced physical attendance within the West London Mental Health NHS Trust Occupational Health Service as well as possibly higher levels of distress seen in staff physically attending Occupational Health. This posed a challenge for recruitment, and meant that the sample in the present study, as well as being smaller than planned, was unlikely to be representative of Occupational Health attenders as a whole, an issue which will be considered in more detail below.

In light of recruitment difficulties, alternative options for recruitment were attempted, such as postal return questionnaires, accepting that these adjustments may have led to bias in sampling. In practice few questionnaires were returned by post and so a second Trust, North West London Healthcare NHS Trust was included in the study at a late stage. The different ethics application process for the two study sites highlighted different views on how NHS staff attending Occupational Health should be regarded. This process provided an interesting and useful space for further reflection on the study methods, but increased the time frame prior to recruitment from North West London Healthcare NHS Trust, and thus restricted the number of participants recruited within the available timeframe of the present study.

The intended sample, would have given a better representation of the studied population, NHS Occupational Health attenders. This would have made findings more generalisable. The likely lack of representativeness of the present sample means that it is difficult to extrapolate from the high rates of Chronic Embitterment and Anxiety in particular, that were evident here. While this sample may not represent NHS staff more broadly, it is hard to imagine a mechanism whereby the sample was biased specifically in the psychological associations of Chronic Embitterment. Therefore the findings are likely to be generalisable to Chronic Embitterment.

While the sample was drawn from a similar population to that studied by Sensky et al. (2015), the ways in which they differed makes comparison and extrapolation difficult. While Sensky et al. did not have a normal distribution of embitterment scores, this was the case in the current sample, despite its being considerably smaller (n235: n79). Another difference was that in the present sample self- reported age was significantly correlated with embitterment which Sensky et al had not found.

Presuming that the earlier, larger sample was a better representation of the Occupational Health service at that time, it appears indicated that our sample was biased toward including those who scored as having Chronic Embitterment, having had a higher proportion, 46 as opposed to 29 percent. Our sample also showed much higher levels of Anxiety and Depression than was seen in Sensky et al. with almost half the sample scoring at levels consistent with clinical Anxiety and a quarter at a level consistent with clinical Depression. Report of Occupational Health staff was that this change reflected changes in recent years to staff physically seen in Occupational Health, with healthier clients more commonly having telephone consultations. The

association of age and embitterment may also be related to the reduced health and increased complexity of the participant population in the present study.

While in both samples females outnumbered males, which is the case in the public sector generally (Cribb, Disney & Sibieta, 2014), in the current sample this difference was considerably more pronounced than it had been in Sensky et al. (2015). In a number of samples in which embitterment has been studied there were more women than men (Mills et al, 2014; Sensky et al., 2015; Linden et al., 2008). While it is intriguing socio-culturally to think about why women might be more prevalent in certain studied populations, the evidence so far suggests that when numbers have been matched for sex, men and women did not differ significantly in terms of embitterment score (Rotter 2009) and there was no significant difference in embitterment between genders here.

In summary, longitudinal research is needed to demonstrate the temporal direction of variables associated with Chronic Embitterment here. A mixed methods approach, may reduce systematic error variance due to common methods. A larger sample, or a population survey would also be of use in terms of identifying the prevalence of embitterment in different settings. Despite the above, it seems likely that findings here in relation to understanding the psychology of Chronic Embitterment would generalise, and are therefore useful.

4.3 Discussion of findings in relation to research questions

4. 31 Positive Beliefs about Rumination

It was predicted that Positive beliefs about rumination would be predictive of Affective Rumination. Through this relationship with Affective Rumination, it was predicted that the PBRs would measure metacognitive processes relevant to embitterment. Neither of these hypotheses were supported. That those who reported experiencing more of the high arousal, negative affective state, Affective Rumination (Cropley & Zijlstra, 2011) did not report more Positive beliefs about rumination is perhaps logical, but does raise questions about the construct measured by the PBRs and whether it is correctly named. As an independent variable in the present study, associations of the PBRs here and in other studies will be briefly discussed, prior to discussion of the impact of modification to the scale by Watkins and Moulds (2005), and what, extrapolating from current findings the scale is suggested to measure. Based on this, comment is made on a possible semantic problem with the scale as it is currently named.

The PBRs had in other studies been found to be positively correlated with Depression and Anxiety (Papageorgiou & Wells, 2002) as well as showing elevated scores in people who have recovered from Depression (Luminet, 2004). In this study however, the Anxiety and Depression combined score on the HADS was not significantly correlated with Positive beliefs about rumination ($r(77) = 0.10, p = 0.38$). It is likely that this is the result of the use of the modified questionnaire developed by Watkins and Moulds (2005).

In the replication and extension study in which the original PBRS was modified removing explicit references to ‘my Depression’, Watkins and Moulds found that only the original version retained a significant correlation with Depression measured by the Beck Depression Inventory (Beck & Steer, 1987). The modified version of the scale dipped just below significance in its relation to Depression at $p = 0.06$. The authors suggested that this demonstrated the reduced effect of mood identification on item endorsement in the modified scale, which had been the object of modifying the scale. People experiencing Depression, endorsed PBRS items relating to ‘my Depression’ more than if the item did not make this explicit mood reference, by asking about Positive beliefs about rumination in more general terms. The authors reflected that in currently depressed and recovered participants, scores on the modified PBRS were still ‘elevated’ compared to never depressed controls, but more modestly so than in the unmodified scale. None the less, the finding indicated that with the attempt to reduce the impact of mood identification, the PBRS was not significantly correlated with Depression, a finding which appears to have been supported by findings in the present study.

The modified PBRS’s lack of significant association with Affective Rumination, HADS or embitterment in the present study, suggests that what the scale measures is not closely related to psychopathology. While the present study showed that negative emotional rumination, Affective Rumination as measured by the WRRS, did not have a significant relationship with Positive beliefs about rumination, the potentially positive and creative variant, Problem Solving Pondering on the WRRS, was significantly positively correlated with the PBRS. While there was no significant relationship between scores on the Sense of Coherence Scale and Positive beliefs

about rumination, the trend was positive (Chapter 3, Table 5). It is possible to hypothesise that successful experience of thinking, making sense of, and finding solutions to problems, might lead people to score more highly on the PBRs. Based on this it might be predicted that concepts such as Self-Esteem (Fennell, 2007), and Self-Efficacy (Benight & Bandura, 2004) would be positively correlated with scores on the PBRs.

Linguistically, it is relevant that scores on the PBRs were correlated with pondering rather than rumination on the WRRS. While the present study would bear out that the two subscales are positively correlated (Cropley et al., 2012), they represent quite different phenomena, related to differing affect and crucially, according to Cropley and Zijlstra (2011), arousal.² Querstret and Cropley (2012, p.350) note that: ‘it is not rumination per se but the type of rumination that is implicated in compromised well-being’. Nolen-Hoeksema et al. (2008, p.400), as part of the response styles theory defined rumination as: ‘a mode of responding to distress that involves repetitively and passively focusing on symptoms of distress and on the possible causes and consequences of these symptoms’, as opposed to their solutions. Based on this study the PBRs seems to be primarily a measure of the metacognitions associated with a more constructive thinking style, pondering. It is perhaps not useful to refer to this state as rumination, as it retains a thought-flexibility not present in problematic, problem enhancing, Affective Rumination (Querstret & Cropley, 2012).

² The two scales are positively correlated, however while Affective Rumination has been found to predict work related fatigue in a regression model, Problem Solving Pondering predicted decreased work-related fatigue, Querstret & Cropley, (2012) suggested that this is due to physiological arousal in Affective Rumination preventing adequate recovery.

This leads to the tentative suggestion, that Watkins and Moulds (2005) modified PBRS is invalid as a measure of metacognitions which predict harmful rumination. Neither it, nor the Problem Solving Pondering subscale of the WRRS measures rumination as it is usually understood in the context of psychological health. In relation to the WRRS as mentioned above, this supports Querstret and Cropley (2012)'s findings and the validity of their identified subscales which differentiate the Affective Rumination and Problem Solving Pondering states. In terms of the modified PBRS, its inbuilt control for the influence of mood may make it a measure of more reflective and positive states.

In summary, while the modified PBRS was not predictive of either Affective Rumination or Embitterment, this finding is potentially useful in terms of developing understanding of the importance of negative affect in rumination, and in embitterment.

4. 32 Affective Rumination

Affective Rumination was central to the proposed model of Chronic Embitterment explored in the present study, as rumination was the only psychological process which had been empirically linked to embitterment prior to this study (Mills et al., 2014). A key finding here was that the association between Affective Rumination and Chronic Embitterment can be better understood through Sense of Coherence. That the association was not independent will be explored first in relation to the existing literature and then in terms of its possible implications for the understanding of the emotion of embitterment.

It initially appears that the reduced importance of Affective Rumination in explaining embitterment in findings of the present study is at odds with what has been suggested by Mills and colleagues (2014). Mills et al. acknowledge however, that their scale, the Bath Bitterness Questionnaire, may be measuring general psychopathology. While the two scales have not been directly compared it has been noted elsewhere that a weakness in discriminant validity has also been observed in Lindens' Embitterment Questionnaire (Rotter, 2009). A high level of overlap between what is measured by embitterment scale (s) and general psychopathology exists (Linden et al. 2008a). Mills et al. did not control for Anxiety and Depression in reporting an association between rumination and bitterness, and therefore it is possible that Mills et al.'s findings were not truly at odds with those in the present study. If Mills et al. had controlled for Anxiety and Depression, it is likely that they would have found that the association of rumination to embitterment was not independent.

Rumination has been named as a predictor of negative moods and mental health problems (Treynor et al., 2003; Kinderman et al., 2013) and although mediated, Affective Rumination showed a strong relationship with Chronic Embitterment here. This study indicated however, in support of Cropley et al., (2012) and Treynor et al., (2003) that thinking about difficulties, pondering problems, was not in itself linked to psychopathology. This suggests that the association between rumination and psychopathology might lie in the emotional features of Affective Rumination, negative affect and high arousal, rather than the cognitive process of thinking about difficulties.

Reflection on the nature of affect and arousal in embitterment as mentioned in Chapter 1, usefully locates the emotion within the wider context of affect research

(Seo et al., 2008). While in discussion of the PBRs above, negative affect is implicated, Querstret & Cropley (2012) emphasise the importance of arousal as a feature which distinguishes Affective Rumination from Problem Solving Pondering.

Querstret & Cropley (2012), and Silva (2013), discuss emotional and physiological arousal as a barrier to cognitive flexibility. Inflexibility of thought is a noted feature of Chronic Embitterment (Linden et al., 2008a). In light of results in the present study, whether arousal is an important feature of rumination in Chronic Embitterment, and whether principally this arousal, as opposed to for example depressed mood is what leads to the cognitive inflexibility observed is questioned.

4.321 The effect of affect and arousal on flexible thinking

Relevant to the present study, research has indicated that rather than negative affect and physiological arousal decreasing flexibility of thought, positive affect increased it. A number of studies have linked increased positive affect with increased cognitive flexibility and intrinsic motivation (Estrada, Isen & Young, 1994; Isen, 1993; Isen & Baron, 1991). This appears related to the flexible sense making and active problem focussed coping seen in individuals with a high Sense of Coherence (Pallant & Lae, 2002).

Isen, Daubman & Nowicki (1987), using ingenuity tests such as Duckers Candle or the Remote Associates Tasks³ explored the effect of induced positive mood or physical arousal on creative problem solving. Positive affect significantly improved

³ In Duckers Candle Task subjects are presented with a box of tacks, a candle and book of matches and are instructed to attach the candle to the wall in such a way as to avoid dripping wax on the table or floor. The Remote Associates Task asks subjects to name a word related to each of 3 other words.

performance compared to subjects with an induced negative mood, neutral mood or neutral physical arousal induced through exercise. This study showed that positive affect seemed to increase the ability to see relationships in diverse stimuli and reduce functional fixedness. Amabile, Barsade, Mueller, and Staw, (2005) conducted a daily diary study with over 200 individuals and found a linear positive relationship between positive mood and creativity. Furthermore, Amabile et al. did not find support for the proposition that high emotional intensity, which suggests arousal, particularly hinders creativity.

In the employment context, George and Brief (1992) showed that workers reporting positive affect were more likely to express novel ideas, and more likely to transfer these novel ideas into effective actions. Madjar, Oldham and Pratt (2002) found a significant positive correlation between self- reported positive mood and supervisor rated creativity in the employees of three companies. In another study, the association between supervisor rated creativity and positive mood remained after correcting for education and scores on the Creative Personality Scale (Gough, 1979 cited in Rank & Frese, 2008). The relationships between the support provided for creativity by the organisation and supervisor rated creativity were mediated by self- rated positive mood of employees.

4. 322 Summary of discussion on the nature of the relationship between Affective Rumination and embitterment

Affective Rumination was indirectly related to embitterment and this was considered to be congruent with the limited literature on psychological processes in embitterment (Mills et al., 2014). The cognitive process of thinking about problems as indicated by the Problem Solving Pondering subscale of the WRRS did not show a significant

relationship to embitterment here. Therefore, in terms of the entrenched and inflexible thinking observed in embittered rumination, the roles of affect and arousal in rumination were discussed.

Positive affect has been repeatedly linked to creative thinking, even when some relevant aspects of personality and support have been controlled for. Despite some, slightly equivocal, evidence that Affective Rumination is a high arousal state (Querstret & Copley, 2012), it may in fact be that the negative emotional context of the ruminations in embitterment are more relevant to the inflexibility of thinking seen in embittered ruminations.

It is important to say however that embitterment is little studied, and while it is possible to make inferences based on clinical presentations and studies of other emotional states, how well existing studies of creativity and affect would map on to the emotion of embitterment is unknown. Additionally, there is an absence of research on the role on positive affect in embitterment, for example that which has been observed when clients enjoy thoughts of redressing injustice (Linden, 2003).

4. 33 Sense of Coherence

Of the three independent variables, only one, Sense of Coherence demonstrated an independent relationship to embitterment. A review of the literature has revealed no other study which has linked these two constructs. While both Sense of Coherence and embitterment are strongly correlated with Anxiety and Depression (Erikson & Lindstrom, 2006; Linden et al, 2008a), they showed a unique relationship here, after HADS was controlled for.

Given the strength of the correlation between Sense of Coherence and embitterment in the present study, the question of whether it could be that embitterment is simply one end of the Sense of Coherence scale was considered. The same question has been raised in relation to neuroticism, which has shown similar correlations with Sense of Coherence to those shown between Sense of Coherence and embitterment in the present study at $r = -0.7$ (Strumpfer, Gouws, & Viviers, 1998). Strumpfer et al.'s conclusion was that: 'the Sense of Coherence appears to be a highly complex construct which partakes in a mixture of personality domains, and is taxonomically above the trait level' (p.457). Similarly with Embitterment, the correlation of $r = -0.66$, while strong, encompasses a range of shared variance with Anxiety and Depression as well as unexplained variance. It would be overly reductive, therefore, to suggest that Sense of Coherence alone gives a satisfactory account of Embitterment. None the less, one way to reduce Embitterment, might be to increase Sense of Coherence. In consideration of this it is relevant to summarise the coping mechanisms that have been found to relate to Sense of Coherence.

4. 331 Coping and Sense of Coherence

Experiencing stress is related to an individual's situational appraisal, in that it has been perceived that demands placed on an individual may exceed their ability to cope (Folkman & Moskowitz, 2000). Sense of Coherence has been derived as a way of understanding the ways that individuals who have been good at coping with extreme stress have achieved positive outcomes (Antonovsky, 1979, 1987). This involved making sense of difficulties, and then taking action to solve the difficulties and increase positive affect or decrease negative affect (Strumpfer et al., 1998). Sense of Coherence, therefore, goes beyond a belief system that stressors are comprehensible,

manageable and meaningful, and is associated with an active response to, or engagement with the environment.

In a study which explored Sense of Coherence and coping in a community sample of 439 Australian adults Pallant and Lae (2002) explored the correlates of stress coping on a measure which assesses the different ways that people respond to stress, the brief COPE inventory (Carver, Scheier & Weintraub, 1989). Pallant and Lae's findings indicated that on average, individuals with a high Sense of Coherence showed more active, problem focused coping, more reinterpretation of difficulties and less behavioral disengagement and use of drugs (Carver et al, 1989). 'While Sense of Coherence is not a coping strategy in itself, individuals with a high Sense of Coherence may be more likely to flexibly adopt adaptive strategies, appropriate to the needs of the specific situation' (Pallant & Lae, 2002, p. 40).

Pallant and Lae found that the highest correlate for Sense of Coherence was Perceived Stress, showing a correlation of $r = -0.65$. This indicated that individuals with a high Sense of Coherence were less likely to view events as stressful and more able to see them in other ways and respond pro-actively. Nammontri (2012, p. 33) commented that 'a person with a strong Sense of Coherence is more likely than one with a weak Sense of Coherence to define stimuli as non-stressors or to appraise them as benign or irrelevant', an evaluative process.

Conversely individuals with a low Sense of Coherence in Pallant and Lae's study perceived a greater degree of stress, but they were less active in their approach, using more avoidant strategies. The study of affect would suggest, consistent with Pallant and Lae's findings that difference in choice of strategy relates to the affective

significance of stimuli (Seo et al., 2008). This determines whether individuals' appraisals lead them to positive or negative motivational systems: approach or avoidance. A positive appraisal is linked to an approach system and has also been associated with how an individual experiences arousal, as energetic and positive, rather than tense and unpleasant (Cacioppo et al. 1997, 1999; Thayer, 1989).

In 170 older adults Wiesmann and Hannich (2008) found that Sense of Coherence accounted for the relationship between subjective well-being and the ability to mobilise resources. Elsewhere, Sense of Coherence has been indicated to mediate the relationship between stress and quality of life in Trainee Nurses (Kleiveland, Natvig & Jepson, 2015).

Recent findings have supported the work of Pallant and Lae (2002) showing that that low Sense of Coherence was associated with increased report of exposure to negative acts in the workplace (Hogh et al., 2016). The relationship between stress and Sense of Coherence however, appears to be complex. Nielsen, Mattiesen and Einarsen, (2008) indicated that while those with a high Sense of Coherence may experience less stress from minor incidents of work place bullying, high Sense of Coherence did not significantly influence the stress experienced when bullying was severe. Additionally, while Sense of Coherence is typically fairly stable within individuals, it has been found to be adversely impacted by traumatic events (Snekkevik, Anke & Stanghelle, 2003; Schnyder et al. 2000) demonstrating that it can alter in response to the environment. In other words, while Sense of Coherence affects the perception of stress, stress can also impact on Sense of Coherence. This is consistent with current understanding of the emotional and physiological manifestations of stress, for example Chronic Embitterment, as a transaction between internal and external

circumstances in which event appraisals partly determined by an individual's experience and personality strongly influence subsequent coping (Lazarus 1966; Cohen, 1981; Schwarzer & Schulz, 2002).

In summary, as well as influencing how people perceive events, Sense of Coherence has been empirically linked to more and less helpful ways of responding. While psychological processes are the primary focus in this present paper, people do not exist in a vacuum, and attempts to increase Sense of Coherence, and to reduce Chronic Embitterment are more likely to succeed if they consider both individual and environmental factors.

4. 4 Clinical Implications

While Sense of Coherence has been demonstrated to be reasonably constant, it is clearly not completely so, for example decreasing in response to traumatic events (Schyder et al., 2000). Longitudinal study has shown that on average Sense of Coherence shows a gradual increase over time (Richardson et al., 2007; Lindmark Stenstrom, Gerdin & Hugoson, 2010). Vastamaki et al., 2009 however, found that following interventions to increase Sense of Coherence, older and younger adults saw equal benefit.

4.41 Clinical implications at the organisational level

In relation to those occurrences which might increase Sense of Coherence Feldt, Kinnunen and Mauno (2000), showed that in a two year longitudinal study Sense of Coherence increased with good organisational climates and low job insecurity. The inverse of this situation might go some way towards explaining the rise of

embitterment in post reunification Germany, and indeed in the current NHS workforce (Lemaître, 2012; Linden, 2003; Rotter, 2009; Sensky et al., 2015; Wilkinson, 2015).

Importantly, there is growing evidence that Sense of Coherence can be strengthened through active interventions. Over a six month period Vastamaki et al. (2009) showed that 74 Finnish people who were unemployed showed a significant group increase in Sense of Coherence following an intervention to support re-employment. Education on specific, relevant topics was shown to particularly impact on the manageability and comprehensibility aspects of Sense of Coherence, while resulting change (in this case reemployment) primarily impacted on the meaningfulness component (Vastamaki et al., 2009).

Group interventions to improve Sense of Coherence in continuous occupation have also had success. Kähönen, Näätänen, Tolvanen and Salmela-Aro (2012) demonstrated significant increases in Sense of Coherence compared with controls in individuals experiencing burnout following analytic and psychodrama group interventions.

Orly and colleagues (2012) demonstrated significant increases in Sense of Coherence in nurses following a group Cognitive Behavioural Intervention course.

4.42 Clinical implications at the individual level

A number of components of CBT may have particular relevance in increasing Sense of Coherence. Thought challenging, for example, may lead to increased flexibility, and activity scheduling relates conceptually to the development of more problem focussed active coping (Greenberger & Padesky, 1995; Pallant & Lae, 2002). While it

has been noted that it is often difficult to engage individuals suffering from Chronic Embitterment in individual therapies (Linden, 2003; Newman, 2011) group and organisational interventions may provide a treatment route that individuals suffering from Chronic Embitterment find more acceptable, and less stigmatising.

Nammontri (2012) ran a randomised ‘education and empowerment’ intervention with young people which targeted Sense of Coherence as a means to improving an aspect of self-reported quality of life⁴. Nammontri focussed on teaching the meaningfulness, manageability and comprehensibility components of Sense of Coherence. Nammontri found that the intervention significantly increased Sense of Coherence, and that this in turn improved other aspects of individual functioning.

That it is possible to increase Sense of Coherence has implications for individual well-being, for example reductions in perceived stress (Pallant & Lae, 2002) and increases in subjective well-being (Wiesmann & Hannich, 2008). The implications in relation to Chronic Embitterment are as yet untested.

4.43 Summary of clinical implications

This study has demonstrated that Sense of Coherence is highly relevant to Chronic Embitterment. There is evidence that Sense of Coherence is impacted by the workplace (Feldt et al., 2000). It is likely that the inverse is also true (Pallant and Lae, 2002). Reductions in staff Sense of Coherence as the result of repeated organisational changes may have adversely influenced the functioning of the NHS (Wilkinson, 2015).

⁴ Oral Health Related Quality of Life

It appears possible, theoretically, to act both at the individual and organisational level to increase Sense of Coherence (Feldt et al., 2007, Kähönen et al., 2012). While a number of different interventions have achieved success in increasing Sense of Coherence, the researcher was not able to identify any study in which this was targeted above the group level. As a protective and resilience promoting organisational approach to delivery of care, focusing on Sense of Coherence as a measure of staff well-being and organisational functioning in health settings might be one way to promote positive cultures and engage workforces.

4. 5 Conclusions and future directions

The complex, multifaceted nature of the Sense of Coherence construct has been highlighted in discussion, reflecting on the interaction of internal and external factors contributing to it. Embitterment is perhaps even more clearly influenced by particular aspects of an individual's circumstances. The objective in the present study was to highlight the psychological processes involved in transactions with the external world which result in the germination and continuation of Chronic Embitterment.

As Chronic Embitterment is noted to increase in certain populations under certain conditions the same is likely to be true for Sense of Coherence. It may increase or decrease in individuals, organisations and nations in relation to societal issues such as national stability, security and changes like industrial or digitalisation.

The role of Affective Rumination was indicated here to be perhaps more as an emotional consequence of low Sense of Coherence than a cause of Chronic Embitterment within the individual, although longitudinal study in a larger sample is

required to confirm this. Rumination remains a prominent feature of Chronic Embitterment, and in work places where high levels of Chronic Embitterment are demonstrably present, it may be interesting to consider the impact of this particularly as it is a recognized phenomenon for which established interventions exist (Querstret & Cropley, 2013).

In conjunction with the psychological impact of job uncertainty and repeated organisational change (Wilkinson, 2015), phenomena such as co-rumination, which is excessive negative problem talk about an issue, may increase the incidence of embitterment (Boren, 2013). The social processes by which embitterment increases in certain populations may be a fruitful avenue of further study (Rotter, 2009). Barsade (2002, cited in Seo et al., 2008) for example, used the valence and arousal model of emotion in her study exploring mood contagion within organizations and found that both factors had relevance.

In relation to flexibility of thinking, the literature suggests that affect may have greater importance than arousal. The respective contributions of the concepts of affect and arousal in relation to the emotion of embitterment require further exploration. Questions were raised about whether Affective Rumination need involve physiological arousal to feature in embitterment. Further exploration of convergent and discriminant validity of the subscales of the WRRS, particularly in relation to physiological arousal and flexibility of thought in a published study would be useful in interpreting findings in the present study. Study of valence and arousal in embitterment, for example the role of positive affect might also be informative in furthering understanding of embitterment within the framework of emotions.

Another presentation in which rumination is a notable feature is depression (Nolen-Hoeksema & Morrow, 1991). Noting that depressive presentations are, in terms of arousal, quite different to stress related presentations such as embitterment, a suggestion is that the role of rumination in emotional disturbance other than embitterment is re-evaluated with the present findings in mind.

In demonstrating for the first time an independent association between embitterment and Antonovsky's Sense of Coherence, possible ways to enhance coping and reduce stress related embitterment in the NHS workforce are indicated. While the findings of this study did not support the study hypotheses, they contribute to the understanding of Chronic Embitterment, and suggest a psychological model of Chronic Embitterment which might form the basis of further research.

This is that individuals low in Sense of Coherence generally have a lower perception of their own ability to cope, a heightened perception of threat, and a lower threshold at which they will begin perceive stress. They are more likely to experience events as stressful (Hogh, 2016; Pallant & Lae, 2002; Erikson & Lindstrom, 2006). There is also a suggestion in the literature that stressful organisational climates may work to lower Sense of Coherence, so the relationship is somewhat circular. There is strong evidence that positive affective experiences increase creative and innovative thinking in the organizational context (Rank & Frese, 2008). In stressful environments, staff may find that capacity to make sense of events is reduced and that without this buffer, Chronic Embitterment becomes more likely (Mehnert & Vehling, 2011). Affectively negative, problem focused thinking may then become repetitive. In this scenario the buffer of social support may also be reduced (Boren, 2013) allowing embitterment to grow in prevalence in vulnerable populations. Adequate testing of this more complex

model would require a larger sample, and a more powerful analytic procedure such as the predictive path model used by Kinderman et al. (2013).

In the NHS context, it is unclear whether embitterment would have a direct relationship with work engagement or whether this would be mediated by Sense of Coherence. Understanding this may be useful to establish, in assessing the impact of Chronic Embitterment. A particular link between Chronic Embitterment and the NHS is theoretically sound, given the uncertain and pressurized circumstances recently described by Wilkinson (2015). However more representative population studies would be a useful way of gaining epidemiological understanding of Chronic Embitterment in the organisational context. In turn, this would inform thinking about where best to target intervention. Erickson and Lindstrom highlight in their 2006 review that the potential value of Sense of Coherence as a health promoting resource has largely not been realised in terms of implementing relevant research findings into health promoting practices. A comprehensive review of the varying treatments shown to increase Sense of Coherence may be an important step on the journey to identifying the most efficient options for reducing levels of Chronic Embitterment in NHS staff. In terms of promoting staff well-being, this provides an opportunity for the NHS to 'get its own house in order' (NHS England, 2016, para. 5).

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Appendices

1. Embitterment Questionnaire

Please read the following statements and indicate to what degree they apply to you.

Please make sure that you answer all the questions.

I have experienced one or more distressing events

	not at all true	hardly true	partially true	very true	extremely true
1. that hurt my feelings and caused considerable embitterment	0	1	2	3	4
2. that led to a noticeable and persistent negative change in my mental well-being	0	1	2	3	4
3. that I see as very unjust and unfair	0	1	2	3	4
4. about which I have to think over and over again	0	1	2	3	4
5. that causes me to be extremely upset when I am reminded of it	0	1	2	3	4
6. that triggers me to harbour thoughts of revenge	0	1	2	3	4
7. for which I blame myself and am angry with myself	0	1	2	3	4
8. that led to the feeling that there is no sense to strive or to make an effort	0	1	2	3	4
9. that frequently makes me feel sullen and unhappy	0	1	2	3	4
10. that has impaired my overall physical well being	0	1	2	3	4
11. that causes me to avoid certain places or people so as to not be reminded of them	0	1	2	3	4
12. that makes me feel helpless and disempowered	0	1	2	3	4
13. that triggers feelings of satisfaction when I think of the responsible party having to experience a similar situation to mine	0	1	2	3	4
14. that has led to a considerable decrease in my strength and drive	0	1	2	3	4
15. that has made me more irritable than before	0	1	2	3	4
16. that has resulted in me having to distract myself in order to experience my normal mood	0	1	2	3	4
17. that made it impossible for me to pursue occupational and/or family activities as before	0	1	2	3	4
18. that caused me to withdraw from friends and social activities	0	1	2	3	4

19. that frequently evokes painful memories

0	1	2	3	4
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Appendix 1. Questionnaires

1. Positive Beliefs about Rumination Scale

Please Circle: 1 (do not agree), 2 (agree slightly), 3 (agree moderately), 4 (agree very much)

I need to think about things to find answers to how I feel	1	2	3	4
Thinking about things helps me to understand past mistakes and failures	1	2	3	4
I need to think about the causes of the feelings I experience	1	2	3	4
Thinking about my emotions helps me to recognise the triggers for how I feel	1	2	3	4
I need to think about things that have happened in the past to make sense of them	1	2	3	4
In order to understand my feelings, I need to think about my life	1	2	3	4
Thinking about the past helps me to prevent future mistakes and failures	1	2	3	4
Thinking about the past helps me to work out how things could have been done better	1	2	3	4
Thinking about my problems helps me to focus on the most important things	1	2	3	4

2. Work Related Ruminations Questionnaire

The following questions relate to your time after work. Please tick the number that applies to you

		Very seldom/ Never	Seldom	Sometimes	Often	Very often/ Always
1	Do you become tense when you think about work related issues in your free time?	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
2	I find solutions to work-related problems in my free time.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
3	I make myself switch off from work as soon as I leave.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
4	In my free time I find myself re-evaluating something I have done at work.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
5	Are you troubled by work-related issues when not at work?	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
6	Do you feel unable to switch off from work?	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
7	Do you become fatigued by thinking about work-related issues during your free time?	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
8	After work I tend to think of how I can improve my work-related performance.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
9	Are you irritated by work issues when not at work?	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
10	I am able to stop thinking about work-related issues in my free time.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
11	I find thinking about work during my free time helps me to be creative.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
12	Do you leave work issues behind when you leave work?	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
13	Do you think about tasks that need to be done at work the next day?	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
14	Do you find it easy to unwind after work?	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
15	Are you annoyed by thinking about work-related issues when not at work?	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>

3. 13 Item Sense of Coherence Scale

Here is a series of questions relating to various aspects of your life. Each question has seven possible answers. Please mark the number, which expresses your answer, with number 1 and 7 being the extreme answers. If the words under 1 are right for you, circle 1: if the words under 7 are right for you, circle 7. If you feel differently, circle the number which best expresses your feeling. Please give only one answer to each question.

1. Do you have the feeling that you don't really care about what goes on around you?

1	2	3	4	5	6	7
very seldom or never						very often

2. Has it happened in the past that you were surprised by the behaviour of people whom you thought you knew well?

1	2	3	4	5	6	7
never happened						always happened

3. Has it happened that people whom you counted on disappointed you?

1	2	3	4	5	6	7
never happened						always happened

4. Until now your life has had:

1	2	3	4	5	6	7
no clear goals or purpose at all						very clear goals and purpose

5. Do you have the feeling that you're being treated unfairly?

1	2	3	4	5	6	7
very often						very seldom or never

6. Do you have the feeling that you are in an unfamiliar situation and don't know what to do?

1	2	3	4	5	6	7
very often						very seldom or never

7. Doing the things you do every day is:

1	2	3	4	5	6	7
a source of deep pleasure and satisfaction						a source pain and boredom

8. Do you have very mixed-up feelings and ideas?

1	2	3	4	5	6	7
very often						very seldom or never

9. Does it happen that you have feelings inside you would rather not feel?

1	2	3	4	5	6	7
very often						very seldom or never

10. Many people – even those with a strong character – sometimes feel like sad sacks (losers) in certain situations. How often have you felt this way in the past?

1	2	3	4	5	6	7
never						very often

11. When something happened, have you generally found that:

1	2	3	4	5	6	7
you overestimated or or under- estimated its importance					you saw things in the right proportion	

12. How often do you have the feeling that there's little meaning in the things you do in your daily life?

1	2	3	4	5	6	7
very often						very seldom or never

13. How often do you have feelings that you're not sure you can keep under control?

1	2	3	4	5	6	7
very often						very seldom or never

4. Hospital Anxiety and Depression Scales

Place an "X" on the answer that best describes how you have been feeling during the LAST WEEK. You do not have to think too much to answer. In this questionnaire, spontaneous answers are more important

A	I feel tense or 'wound up': Most of the time A lot of the time From time to time (occ.) Not at all	3 2 1 0
D	I still enjoy the things I used to enjoy: Definitely as much Not quite as much Only a little Hardly at all	0 1 2 3
A	I get a sort of frightened feeling as if something awful is about to happen: Very definitely and quite badly Yes, but not too badly A little, but it doesn't worry me Not at all	3 2 1 0
D	I can laugh and see the funny side of things: As much as I always could Not quite so much now Definitely not so much now Not at all	0 1 2 3
A	Worrying thoughts go through my mind: A great deal of the time A lot of the time From time to time, but not often Only occasionally	3 2 1 0
D	I feel cheerful: Not at all Not often Sometimes Most of the time	3 2 1 0
A	I can sit at ease and feel relaxed: Definitely Usually Not often Not at all	0 1 2 3
D	I feel as if I am slowed down: Nearly all the time Very often Sometimes Not at all	3 2 1 0
A	I get a sort of frightened feeling like "butterflies" in the stomach: Not at all Occasionally Quite often Very often	0 1 2 3
D	I have lost interest in my appearance: Definitely I don't take as much care as I should I may not take quite as much care I take just as much care	3 2 1 0
A	I feel restless as I have to be on the move: Very much indeed Quite a lot Not very much Not at all	3 2 1 0
D	I look forward with enjoyment to things: As much as I ever did Rather less than I used to Definitely less than I used to Hardly at all	0 1 2 3
A	I get sudden feelings of panic: Very often indeed Quite often Not very often Not at all	3 2 1 0
D	I can enjoy a good book or radio/TV program: Often Sometimes Not often Very seldom	0 1 2 3

Are you (please circle): male / female

In the last 12 months, how many days have you been absent from work for any reason:

What is your age in years?

Thank you very much for taking the time to complete these questionnaires.

Appendix 2. Short information form

WE WOULD BE GRATEFUL FOR YOUR HELP WITH A RESEARCH STUDY

The Department is carrying out a research project to better understand certain aspects of stress at work.

We are asking all Trust staff who attend the Occupational Health Department to help us with the research.

You don't have to participate in the study, and whether or not you decide to take part will not influence in any way the care you receive in the Occupational Health Department. The research will continue for three months, so you if you attend more than once in this period you would not be expected to participate again.

The person you see will explain the research to you in more detail, answer any questions you might have, and if you agree to take part in the study, get your written consent. You have been given this brief information sheet to give you a little longer to consider whether or not you wish to help us with the research.

All that we will ask of you is to complete five brief questionnaires, after your Occupational Health appointment. This should take less than 10 minutes in all. The questionnaires are entirely anonymous, so nobody will be able to trace your replies back to you.

Because the questionnaires are anonymous, participating in the project will have no direct benefit to you personally. However, we hope that the project will help the Occupational Health Department staff gain a fuller understanding of some important psychological aspects of the work experiences of Trust staff, which should benefit all staff.

Appendix 3. Long Information form

PARTICIPANT INFORMATION SHEET :EXPLORING ASPECTS OF STRESS AT WORK

We would like to invite you to take part in a research study. Before you decide you need to understand why the research is being done and what it would involve for you. Please take time to read the following information carefully.

What is the purpose of the study?

The project aims to examine how particular experiences occurring among NHS staff might relate to stress and to mental illness. Part of the project is being carried out by Jo Dunn, a Trainee Clinical Psychologist in the NHS, as part of her Doctorate in Clinical Psychology at Royal Holloway University.

Why have I been invited to take part?

All staff of WLMHT and LNWHT attending an appointment in the Trust's Occupational Health Department during a defined time period will be invited to participate. .

Do I have to take part?

It is up to you to decide whether you want to take part in the study. The person you see at your appointment will describe the study and go through this information sheet, which will then be given to you. This is research project and is separate from any treatment you have been receiving from Occupational Health Staff. If you agree to take part, you will be asked to sign a consent form to confirm your agreement. You will then complete the questionnaires independently and your answers will not be known to Occupational Health Staff. The consent form will be kept separately from the questionnaires you fill in. You are free to withdraw at any time, without giving a reason. Whether or not you decide to take part will not in any way affect the service you receive from the Occupational Health Department.

What will taking part involve?

If you agree to take part, you will be asked to complete a set of questionnaires. These will include questions about your reasons for coming to the Occupational Health Department, some questions about you and your job, about stress, and about some experiences you may or may not have had at work. The questionnaire should take less than 20 minutes to complete.

Am I likely to experience any problems in taking part?

The questions used in the project have all been used in routine assessments in the Occupational Health Department, and no problems have been encountered among those staff who have been asked them. If you do experience any problems, or have any complaints about your participation in the project, please contact either Professor Tom Sensky or Jo Dunn (contact details below). Alternatively, if you prefer, you can discuss your concerns with any member of the Occupational Health Department.

What will happen to the information I provide?

Your questionnaire replies, like all the others, are totally anonymous. There is no way of tracing your replies back to you personally. The questionnaires will not be included in your Occupational Health records. The questionnaires collected will be kept securely. Results from all the questionnaires collected will be put together then analysed. The results will be stored on a computer (but remember that because all the questionnaires are anonymous, nobody will be

able to identify your particular replies). The results from all the questionnaires combined are expected to increase our understanding how different people can react to stressors at work. The results of the study will be made available to all Trust staff via Staff new letters, and in presentations at scientific meetings, and will also be written up for peer-reviewed publication.

Will I personally benefit from taking part?

Participating in the project will have no direct benefit to you personally. Because the questionnaires are anonymous, none of the staff in the Occupational Health Department will know your answers. However, we hope that the project will help the Occupational Health Department staff gain a fuller understanding of some important aspects of the work experiences of Trust staff, which should benefit all staff. If, having taken part in the project and having thought about the questions asked, you would like to discuss further any aspect of your work experience with someone in the Occupational Health Department, please ask to see someone.

Who is funding this research?

Royal Holloway University are sponsors of the research, and have funded this study. All research in the NHS is also looked at by independent group of people, called a Research Ethics Committee to protect your safety, rights, well-being and dignity. This study has been reviewed and given favourable opinion by Chelsea Research Ethics Committee.

What if I'd like more information?

Ask us if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to participate. If you decide to take part, we would be grateful if you would sign the attached consent form.

Contact details

Professor Tom Sensky Professor of Psychological Medicine Imperial College Occupational Health Department West London Mental Health NHS Trust Uxbridge Road Southall Middlesex UB1 3EU e-mail: tom.sensky@nhs.net Telephone: 020 8354 8919	Jo Dunn Trainee Clinical Psychologist Clinical Psychology Department Bowyer Science Building Royal Holloway University of London Egham Hill Egham TW20 0EX e-mail: Joanne.Dunn.2013@live.rhul.ac.uk
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Appendix 4. Consent form

CONSENT FORM: Exploring possible outcomes of stress at work

Name of Researchers: Tom Sensky and Jo Dunn

	Please initial
I confirm that I have read and understand the information sheet for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.	
I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason, without my medical care or legal rights being affected.	
I agree to take part in the above study.	

Name of Participant

Signature

Date

Name of person taking
consent

Signature

Date

Appendix 5a. Research and Development Approval West London Mental Health NHS Trust

West London Mental Health 
NHS Trust

*We care
to make the
difference*

Prof Tom Sensky
Consultant Psychiatrist
Health at Work Service
Canal Mews
Uxbridge Road
Southall
Middlesex UB1 3EU

West London Mental Health Trust R&D Office
Trust Headquarters
1st Floor
Wing B
1 Armstrong Way
Middlesex UB2 4SD
Tel: 020 8354 8738
Fax: 020 8354 8733
Email: rd_office@wlmh.nhs.uk

4 August 2015

Dear Prof Sensky

Re: **Identifying treatable aspects of Chronic Embitterment**
LREC Ref:
R&D Reference Number: **SENTW1501**

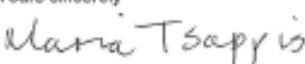
I am pleased to confirm that the above study has now received a full R&D approval, and you may continue your research in **West London Mental Health Trust**. May I take this opportunity to remind you that during the course of your research you will be expected to ensure the following:

- **Patient contact:** only trained or supervised researchers who hold the appropriate Trust/NHS contract (honorary or full) with each Trust are allowed contact with that Trust's patients. If any researcher on the study does not hold a contract please contact the R&D office as soon as possible.
- **Informed consent:** original signed consent forms must be kept on file. A copy of the consent form must also be placed in the patient's notes. Research projects are subject to random audit by a member of the R&D office who will ask to see all original signed consent forms.
- **Data protection:** measures must be taken to ensure that patient data is kept confidential in accordance with the Data Protection Act 1998
- **Health & safety:** all local health & safety regulations where the research is being conducted must be adhered to.
- **Serious Adverse events:** adverse events or suspected misconduct should be reported to the R&D office and the Research Ethics Committee.
- **Project update:** you will be sent a project update form at regular intervals. Please complete the form and return it to the R&D office.
- **Publications:** it is essential that you inform the R&D office about any publications which result from your research.
- **Ethics:** R&D approval is based on the conditions set out in the favourable opinion letter from the Research Ethics Committee. If during the lifetime of your research project, you wish to make a revision or amendment to your original submission, please contact both the Research Ethics Committee and R&D Office as soon as possible.
- **Monthly/Annual Progress report:** you are required to provide us and the Research Ethics Committee with a progress report and end of project report as part of the research governance guidance.
- **Recruitment data:** if your study is a portfolio study, you are required to upload the recruitment data on a monthly basis in the website:
http://www.crncc.nhs.uk/about_us/processes/portfolio_recruitment/
- **Amendments:** if your study requires an amendment, you will need to contact the Research Ethics Committee. Once they have responded, and confirmed what kind of amendment it will be defined as, please contact the R&D office and we will arrange R&D approval for the amendment.
- **Audits:** each year, West London Mental Health Trust selects 10% of the studies from each service we have approved to be audited. You will be contacted by the R&D office if your study is selected

for audit. A member of the governance team will request you complete an audit monitoring form before arranging a meeting to discuss your study.

We would like to wish you every success with your project.

Yours sincerely



Maria Tsappis
Research Governance Officer

Appendix 5b. Research Approval Chelsea Research Ethics Committee



Health Research Authority

London - Chelsea Research Ethics Committee

Research Ethics Committee (REC) Bristol Centre
Level 3, Block B
Whitefriars
Levens Mead
Bristol
BS1 2NT

Telephone: 01173421330

22 February 2016

Ms Jo Dunn
Trainee Clinical Psychologist
NHS Camden and Islington
Royal Holloway University of London
Clinical Psychology Dept.(Bowyer Science Building)
Egham Hill
Surrey
TW20 0EX

Dear Ms Dunn

Study title:	Identifying Treatable Aspects of Chronic Embitterment in NHS staff
REC reference:	16/LO/0205
Protocol number:	N/A
IRAS project ID:	168714

Thank you for your letter of 19 February 2016, responding to the Committee's request for further information on the above research and submitting revised documentation.

The further information has been considered on behalf of the Committee by the Chair.

Confirmation of ethical opinion

On behalf of the Committee, I am pleased to confirm a favourable ethical opinion for the above research on the basis described in the application form, protocol and supporting documentation as revised, subject to the conditions specified below.

Conditions of the favourable opinion

The REC favourable opinion is subject to the following conditions being met prior to the start of the study.

Management permission must be obtained from each host organisation prior to the start of the study at the site concerned.

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

With the Committee's best wishes for the success of this project.

Yours sincerely

A handwritten signature in black ink, appearing to read 'SD', with a horizontal line underneath.

Dr Shelley Dolan
Chair

Appendix 5c: Research and Development Approval London North West Healthcare NHS Trust

Stronger
Together

London North West Healthcare **NHS**
NHS Trust

R&D Office
Rooms 7N 014, Level 7, Maternity Block
Northwick Park Hospital
Watford Road, Harrow HA1 3UJ
Tel: 020 8969 2011
Fax: 020 8969 5081
E-mail: alan.warnes@nhs.uk
Website: www.nwh.nhs.uk/research

NHS Management Permission Letter for Research

To: Dr Janet Ballard

From: Dr Alan Warnes (Assistant Director for R&D)

Date: 23/03/2016

R&D Ref: RD15/139

Ethics Ref: 16/LO/0205

CSP or UKCRN ID Ref: (if applicable)

Project Title: Identifying treatable aspects of chronic embitterment in NHS staff

I understand that you have received a favourable ethics opinion for the above project, with the condition that you do not undertake research in an NHS organisation until relevant NHS Management Permission or Approval has been received. I am therefore writing on behalf of the North West London Hospitals NHS Trust to inform you that the project has been approved by the Trust and you may now proceed.

Yours sincerely,



Dr Alan Warnes

Cc

Joanne Dunn

